“HISTOMORPHOLOGY OF PAPULOSQUAMOUS SKIN LESIONS WITH SPECIAL STAIN APPLICATION-AN ANALYSIS”

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M.D. DEGREE

In

PATHOLOGY – BRANCH III

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DECLARATION

I hereby declare that the dissertation entitled "**HISTOMORPHOLOGY OF PAPULOSQUAMOUS SKIN LESIONS WITH SPECIAL STAIN APPLICATION-AN ANALYSIS**" is a bonafide research work done by me in the Department of Pathology, Coimbatore Medical College during the period from July 2016 to June 2017 under the guidance and supervision of Prof.**Dr. C.Lalitha, M.D**., Professor and Head of the Department, Department of Pathology, Coimbatore Medical College.

This dissertation is submitted to The Tamilnadu Dr.MGR Medical University, Chennai towards the partial fulfilment of the requirement for the award of M.D., Degree (Branch III) in Pathology. I have not submitted this dissertation on any previous occasion to any University for the award of any Degree.

Place: Coimbatore

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CERTIFICATE

This is to certify that the dissertation entitled "Histomorphology of papulosquamous skin lesions with special stain application-an analysis" is a record of bonafide work done by **Dr.V.Uma** in the Department of Pathology, Coimbatore Medical College, Coimbatore under the guidance and supervision of **Dr.G.S.Thiriveni Balajji M.D**., Associate Professor, Department of Pathology, Coimbatore Medical College and submitted in partial fulfilment of the requirements for the award of M.D. Degree (Branch III) in Pathology by The Tamilnadu Dr. MGR Medical University, Chennai.

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CERTIFICATE – II

This is to certify that this dissertation work titled "**HISTOMORPHOLOGY OF PAPULOSQUAMOUS SKIN LESIONS WITH SPECIAL STAIN APPLICATION-AN ANALYSIS**" of the candidate Dr. V. UMA with registration Number 201513256 for the award of M.D in the branch of Pathology. I personally verified the urkund.com website for the purpose of plagiarism Check. I found that the uploaded thesis file contains from introduction to conclusion pages and result shows 0% (Zero percentage) percentage of plagiarism in the dissertation.

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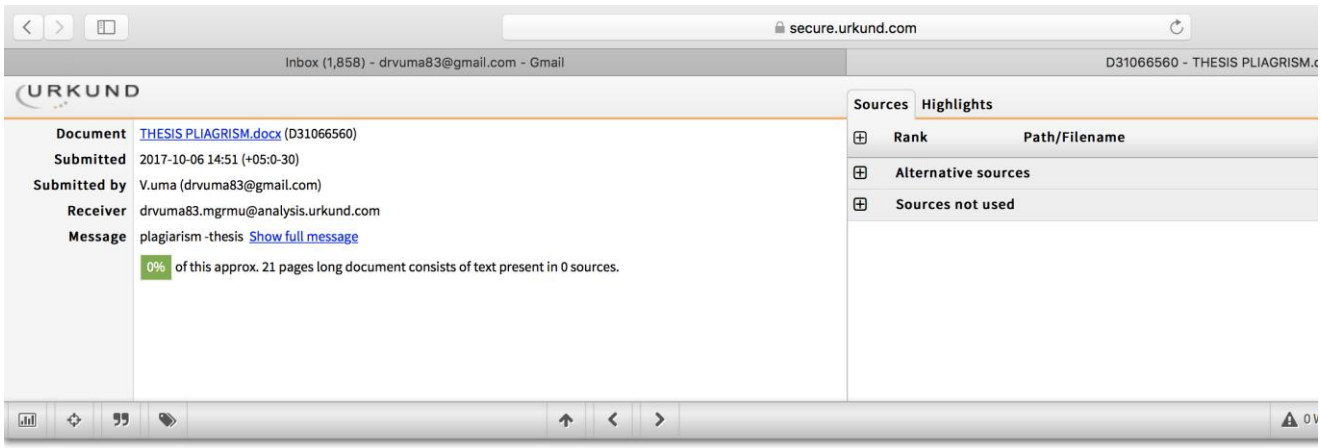


HISTOMORPHOLOGY OF PAPULOSQUAMOUS SKIN LESIONS WITH SPECIAL STAIN APPLICATION-AN ANALYSIS

Introduction Papulosquamous skin lesions are the largest group of skin disorder seen by dermatologists and pathologists. Psoriasis and lichen planus are the most common skin lesions among papulosquamous skin lesions. The prevalence of psoriasis ranges from 0.09% to11.4%1. The incidence of psoriasis is 100 per 1 lakh population2. In India prevalence of psoriasis is 0.44-2.8%3. The prevalence of lichen planus is0.22-5% worldwide4-8. In India the prevalence of lichen planus is 0.9 -1.89, 10. Skin is a double-layered membrane that covers the body. Skin is the largest organ in the body that plays a key role in providing a mechanical barrier against the external environment. It is a window to ones well-being11. In the skin, epidermis rests on a basement membrane. Basement membrane is a complex structure composed of superficial lamina lucida and deep lamina densa. Lamina lucida bind to hemi desmosomes of epidermis. Lamina densa binds to type 4 collagen. Basement membrane also contain neutral polysaccharide. Many lesions affect the epidermis, basement membrane, dermis and sub cutis. Of these the papulosquamous skin lesions are characterized by erythematous plaques and papules The various papulosquamous skin lesions include 1. Psoriasis 2. Lichen planus 3. Pityriasis rubra pilaris 4. Para psoriasis 5. Pityriasis rosacea 6. Lupus erythematosus 7. Seborrheic dermatitis 8. Tenia corporis In the above patients clinical diagnosis is possible mostly. However in cases with atypical presentation histopathology is needed to further categorize it. Hence the present study intends to correlate the clinical and histopathological features of papulosquamous skin lesions. Signifigance of histopathology in diagnosing atypical cases of papulosquamous skin lesions are studied. Although histopathology is the gold standard for most skin lesions, certain skin lesions require some special stains to confirm the diagnosis. Lichenoid reaction pattern can be seen in many diseases like lichenoid drug eruption, lichen striatus etc. thus applying special stain could be tried to enhance the diagnostic accuracy. Present study intends to apply PAS stain in lichen planus and lichenoid reaction pattern patients. Periodic Acid Schiff is useful in staining basement membrane and colloid bodies in lichen planus. It also demonstrates basement membrane thickening in lupus erythematosus and bullous pemphigoid. Vessels are demonstrated by PAS stain in vasculitis. Lichen planus can be diagnosed clinically by typical presentation. Lichen planus present as pruritic, purple papules. It is most commonly seen in extremities. Lichenoid reactions which cannot be distinguished from lichen planus histopathology alone. Periodic Acid stain may be helpful in differentiating the two. In present study PAS stain is applied to distinguish lichenoid reaction patterns and lichen planus and its statistical significance is analyzed

AIM To study the histomorphology of papulosquamous skin lesions with special stain application over a period of one year at Coimbatore Medical College Hospital.

CONTENTS

LIST OF TABLES

LIST OF CHARTS

LIST OF COLOUR PLATES

1	Club shaped rete ridges and suprapapillary thinning of psoriasis- Low power view(x10X)
2	Club shaped rete ridges and suprapapillary thinning of psoriasis- High power view(x40X)
3	Perivascular lymphocytic infiltrate of early psoriasis –Low power veiw (x10X)
4	Perivascular lymphocytic infiltrate of early psoriasis –Low power view (x40X)
5	Hyperkeratosis and acanthosis of psoriasis- High power view(x40X)
6	Dilated and congested blood vessel in papillary dermis of early psoriasis – High power view
7	Irregular acanthosis and saw toothed rete pegs of lichen planus- Low power view(x10X)
8	Hyperkeratosis of lichen planus- High power view(x40X)
9	Sections showing band like inflammatory infiltrate of lichen planus- Low power view(x10X)
10	Sections showing band like inflammatory infiltrate of lichen planus- High power view(x40X)
11	Vacuolar degeneration and pigment incontinence of lichen planus-– High power view(x40X)
12	PAS Stain show basement membrane thickening and focal fragmentation of basement membrane in lichen planus- – High power view(x40X)

LIST OF COLOUR PLATES

INTRODUCTION

Papulosquamous skin lesions are the largest group of skin disorder seen by dermatologists and pathologists. Psoriasis and lichen planus are the most common skin lesions among papulosquamous skin lesions. The prevalence of psoriasis ranges from 0.09% to 11.4%[1]. The incidence of psoriasis is 100 per 1 lakh population[2]. In India prevalence of psoriasis is 0.44-2.8%[3]. The prevalence of lichen planus is 0.22-5% worldwide[4-8]. In India, the prevalence of lichen planus is 0.9 -1.8[9, 10].

Skin is a double-layered membrane that covers the body. Skin is the largest organ in the body that plays a key role in providing a mechanical barrier against the external environment. It is a window to ones well-being[11]. In the skin, epidermis rests on a basement membrane.

Basement membrane is a complex structure composed of superficial lamina lucida and deep lamina densa. Lamina lucida bind to hemi desmosomes of epidermis. Lamina densa binds to type 4 collagen. Basement membrane also contain neutral polysaccharide.

Many lesions affect the epidermis, basement membrane, dermis and sub-cutis. Of these, the papulosquamous skin lesions are characterized by erythematous plaques and papules.

The various papulosquamous skin lesions include

1. Psoriasis
2. Lichen planus
3. Pityriasis rubra pilaris
4. Para psoriasis
5. Pityriasis rosacea
6. Lupus erythematosus
7. Seborrheic dermatitis
8. Tinea corporis

In the above patients, clinical diagnosis is possible mostly. However in cases with atypical presentation, histopathology is needed to further categorize it. Hence the present study intends to correlate the clinical and histopathological features of papulosquamous skin lesions. Significance of histopathology in diagnosing atypical presentation of papulosquamous skin lesions are studied.

Although histopathology is the gold standard for most skin lesions, certain skin lesions require some special stains to confirm the diagnosis. Lichenoid reaction pattern can be seen in many diseases like lichenoid drug eruption, lichen striatus etc. Thus applying special stain could be tried to enhance the diagnostic accuracy. Present study intends to apply PAS stain in lichen planus and lichenoid reaction pattern patients.

Periodic Acid Schiff is useful in staining basement membrane and colloid bodies in lichen planus. It also demonstrates basement membrane thickening in lupus erythematosus and bullous pemphigoid. Vessels are demonstrated by PAS stain in vasculitis.

Lichen planus can be diagnosed clinically by typical presentation as pruritic, purple papules. It is most commonly seen in extremities. Few cases of lichenoid reactions cannot be distinguished from lichen planus by histopathology alone. In such patients Periodic Acid Schiff stain may be helpful in differentiating the two.

In present study, PAS stain is applied to distinguish lichenoid reaction patterns and lichen planus and its statistical significance is analyzed.

AIM

To study the clinical features and histomorphology of papulosquamous skin lesions with special stain application over a period of one year at Coimbatore Medical College Hospital.

OBJECTIVES

1. To analyze the spectrum of papulosquamous skin lesions at Coimbatore Medical College Hospital in one year period.
2. To correlate the clinical features, provisional diagnosis and histomorphology of papulosquamous skin lesions.
3. To study the significance of Periodic Acid Schiff stain in lichen planus patients.

REVIEW OF LITERATURE

Papulosquamous skin lesions are characterized by combination of papule and scaly plaques of skin[12]. They are common in children, but it can also occur in adults. They are more common during spring[13]. Papulosquamous skin disorder is frequently seen in dermatology. Categorisation of papulosquamous disorder need histopathological correlation[14].

Papulosquamous skin disorder includes

1. Psoriasis
2. Lichen planus
3. Pityriasis rubra pilaris
4. Para psoriasis
5. Pityriasis rosacea
6. Lupus erythematosus
7. Seborrheic dermatitis
8. Tinea corporis

There are subtle difference in onset, anatomic distribution, symptoms, treatment and response to therapy. Hence, accurate diagnosis is needed to treat papulosquamous skin lesion patients.

Introduction

Skin is a double-layered membrane covering the body. It consists of

1. Epidermis
2. Dermis
3. Subcutis

The epidermis is mainly composed of keratinocytes.

The dermis contains collagen, elastic tissue and ground substance and is of variable thickness, from 0.5 mm on the eyelid or scrotum to more than 5 mm on the back. The dermis is subdivided into

1. superficial papillary dermis (contain superficial vascular plexus)
2. Reticular dermis.

Below the dermis is a layer of subcutaneous fat which is separated from the rest of the body by a vestigial layer of striated muscle

Physiology of skin

Skin is the largest organ in the body and plays a key role in providing a mechanical barrier against the external environment.

The cornified cell restrict water loss from the skin and they have an innate immune defense against bacteria, viruses and fungi. Langerhans cells helps in initiation of immune responses against micro organisms

Melanin, which is mostly found in basal keratinocytes, provides some protection against DNA damage from ultraviolet radiation.

An important function of skin is thermoregulation. Vasodilatation or vasoconstriction of the blood vessels in the deep or superficial plexuses helps regulate heat loss. Eccrine sweat glands are found at all skin sites. Secretions from apocrine sweat glands give body odour. Skin lubrication and waterproofing is provided by sebum secreted from sebaceous glands.

Subcutaneous fat has cushioning effect during trauma and it also provide insulation and a calorie reserve. Fat also has an endocrine function and contributes to tissue remodeling and phagocytosis. Skin also has a key function in synthesizing various metabolic products, such as vitamin D.

EMBRYOLOGY[15]

Two major embryological elements join together to form skin. Skin is composed of prospective epidermis and prospective mesoderm[4]

The prospective epidermis that originates from a surface area of the early gastrula, and the prospective mesoderm that comes in contact with the inner surface of the epidermis during gastrulation.

The mesoderm generates the dermis and is involved in the differentiation of epidermal structures such as hair follicles.

Melanocytes are derived from the neural crest. After gastrulation, there is a single layer of neuroectoderm on the embryo surface. This layer will go on to form the nervous system or the skin epithelium, depending on the molecular signals.

The embryonic epidermis consists of a single layer of multipotent epithelial cells which is covered by a special layer known as periderm that is unique to mammals. Periderm provides some protection to the newly forming skin as well as exchange of material with the amniotic fluid.

The embryonic dermis is at first very cellular and at 6–14 weeks Three types of cells are present:

1. Stellate cells
2. Phagocytic macrophages
3. Granule secretory cells, either melanoblasts or mast cells

At 14 to 21weeks fibroblasts are numerous and active. Merkel cells and mast cells can be identified. Hair follicles and nails are evident at 9 weeks. Sweat glands are also noted at 9 weeks on the palms and the soles.

Sweat glands at other sites and sebaceous glands appear at 15 weeks. Touch pads become recognizable on the fingers and toes by the sixth week and development is maximal by the 15th week.

The earliest development of hair occurs at about 9 weeks in the regions of the eyebrow, upper lip and chin. Sebaceous glands first appear as hemispherical protuberances on the posterior surfaces of the hair pegs and become differentiated at 13–15 weeks.

Langerhans cells are derived from the monocyte– macrophage–histiocyte lineage and enter the epidermis at about 12 weeks.

HISTOLOGY OF SKIN[15]

1. Epidermis
2. Dermis
3. Subcutis

EPIDERMIS

Usually 4 layers

1. Stratum basale
2. Stratum spinosum
3. Stratum granulosum
4. Stratum corneum

Stratum basale or germinivatum

Stratum basale consist of single layer of cuboidal cells lying in the basement membrane. Keratinocytes having abundant eosinophilic cytoplasm and ovoid nuclei. Keratinocytes are connected to other keratinocyte by hemidesmosomes. Keratinocytes attached to basement membrane by desmosomes. Mitotic activity is increased in basal layer and para basal layer.

Stratum spinosum

Stratum spinosum is otherwise called as spinous cell layer or prickle cell layer. Keratinocytes in this layer and basal layer are connected by spinous process which is not visualized in normal skin. It is seen in intercellular edema.

Stratum granulosum

Stratum granulosum is named due to irregular darkly staining basophilic keratohyaline granule accumulation. Keratohyaline accumulation causes cells to become flattened and mature.

Stratum corneum

Stratum corneum is the most superficial layer and composed of single layer of dead cell. But they are functional. They also contain

keratin. Cells in this layer are called as corneocytes. These cells vary widely in distribution. They form basket weave appearance.

Stratum lucidum

Stratum lucudum is seen in palm and sole. It is seen in between stratum corneum and granulosum. They differ from stratum corneum by high lipid content and pale eosinophilic appearance.

Cells in the epidermis:

Keratinocytes:

It is composed of actin, tubulin containing microtubules and intermediate filaments. Keratins are the intermediate filaments in keratinocytes.

IHC for keratinocytes

- Positive for high molecular weight cytokeratin
- Negative for CAM5.2.
- K9, K2 co expression limited to skin

Melanocytes[16]

Melanocytes are pigment-producing cells and are found in the skin at the dermoepidermal junction. It is responsible for production and secretion of melanin pigment. Cells have dark ovoid nuclei and clear

cytoplasm. They appear as vacuolated cells in haematoxylin and eosin stained sections. Colour of the individual depends on the amount of melanin produced.

The function of melanocytes is production of melanin, control of vitamin D3 synthesis and local Thermoregulation

Special stain for melanocytes

Masson trichrome stain

IHC for melanocytes

1. Tyrosinase- positive
2. Melana- positive
3. HMB45 - positive in some cases.
4. S100

Merkel cells[16]

Merkel cells are post mitotic cells scattered throughout the epidermis. Merkel cells represent mechanoreceptors. They are located amongst basal keratinocytes

IHC for Merkel cell

Best identified with cytokeratin 20

Langerhans Cells[16]

Langerhans cell is an antigen presenting cell. It is located above stratum basale. It travels between skin and lymph node. It is not seen in H&E sections.

They are best seen with S100 and CD1a. They show Birbeck granules in electron microscopy.

BASEMENT MEMBRANE

Basement membrane is a basal layer of epidermis attached to superficial dermis. It is divided into superficial lamina lucida and a deeper lamina densa.

It contain type 4 collagen composed of alpha 1 and alpha 2 chains. Basement membrane also contain neutral polysaccharide. Basement membrane can be visible using H&E section.

They can be stained with PAS and Alcian blue. Basement membrane is best seen with PAS. Immunofluorescence is also useful in visualising basement membrane.

DERMIS

1. Papillary dermis
2. Reticular dermis

Papillary dermis

It is irregular, possess undulating system of papillae and complimentary rete ridges. It also contain fluffy, pale eosinophilic collagen. Inferior edge is formed by sub papillary arteries, vein and lymph plexus.

Reticular dermis

It has rich vascular supply.

Dermo epidermal junction

The interface between the lower part of epidermis and the top layer of dermis consists of a complex network of interacting macromolecules that form the cutaneous basement membrane zone. Many of these components are glycoproteins and thus the BMZ can be recognized histologically as staining positive with Periodic Acid Schiff staining [17]

Papulosquamous disorders

Papulosquamous skin disorders include

1. Psoriasis
2. Lichen planus
3. Pityriasis rubra pilaris
4. Para psoriasis
5. Pityriasis rosacea
6. Lupus erythematosus

7. Seborrheic dermatitis
8. Tinea corporis

PSORIASIS[19]

Psoriasis is charecterised by chronic recurrent circumscribed erythematous plaques of varying size with thick silver scale.

Age

Psoriasis can occur at any age. Peak at 20 to 30 years and 50 years[19]

Site

Knee, extensor surface of elbow and knee, scalp, gluteal region and nail[19]. If flexor areas involved they are called as inverse psoriasis. Palm and sole nail and oral cavity can also be affected.

Clinical presentation[11]

Patients present with scaly plaques of variable size. There is sharply delineated dry lesions that are covered by layer of fine silvery scales.

Koebners phenomena

When the silvery scales are removed they produce pin point haemorrhages.

There is an abrupt eruption in acute disease associated with streptococci. Pustules are absent in psoriasis[22]. Pustules may present in pustular psoriasis.

Nail changes[24, 25, 26]- onycholysis, pitting, loosening of nail bed, discolouration of nail bed, subungual hyperplasia. Oral lesion[17]- stomatitis, redness, desquamation and blanching. Psoriatic arthritis- involves distal inter phalangeal joint.

Epidermal kinetics[19, 22, 23, 24]

Transition of keratinocytes from basal layer to surface of skin is known as transit time. Usually in normal skin the transit time is 50 -60 days. In psoriasis, the transit time is reduced to 7 days.

Histopathology[17, 20, 23, 28]

Earliest lesion show dilatation and congestion of vessel in papillary dermis. Early lesion show dilated vessels in dermal papillae, perivascular cuffing and exocytosis of lymphocyte. Later, micro abscess and para keratosis is seen.

Histological lesions characterised by

1. Acanthosis
2. Regular elongation of rete ridges
3. Supra papillary thinning

4. Polymorphic inflammatory infiltrate
5. Munro micro abscess-polymorphic neutrophils enter in to parakeratosis

Variants of psoriasis[28]

1. Acute generalised pustular psoriasis
2. Generalized pustular psoriasis of pregnancy
3. Localised pustular psoriasis
4. Guttate or eruptive psoriasis
5. Palmoplantar psoriasis
6. Infantile or juvenile
7. Sub-acute annular psoriasis
8. Psoriasis in AIDS

Acute Generalised Pustular Psoriasis[29]

Otherwise known as von zumbusch type or acute exanthematous type. Earliest lesion include pin head sized macules and smooth surfaced papules. There is capillary dilation and oedema of papillary dermis with lymphocytic infiltrate surrounding the capillaries. Neutrophils in parakeratotic mounds are also known as Munro abscess, is the earliest manifestation. There is spongiosis. In some cases there is exocytosis of neutrophils followed by neutrophilic aggregates in spinous layer leads to formation of small spongiform pustules of kohoj.

Histopathology

Characterised by acanthosis and irregular elongation of rete pegs with thickening of rete ridges, supra papillary thinning with small spongiform pustule, Munro micro abscess, dilated tortuous capillaries and spongiform pustule of kohoj.

Generalised pustular psoriasis of pregnancy[30]

Otherwise known as impetigo herpetiformis

Localised pustular psoriasis

It is similar to generalised pustular psoriasis and most commonly affected site is nail bed.

Guttate or eruptive psoriasis

Guttate psoriasis is an early or active lesion of psoriasis. It is characterised by well-developed inflammatory infiltrate with less developed acanthosis. Basket weave orthokeratosis is seen here. Multi layered mounds of parakeratosis with neutrophils covered by cornified layer is present.

Palmoplantar psoriasis[28, 30]

Palmoplantar psoriasis is most common in females of 4th to 5th decade and female preponderance is noted. Acrodermatitis continua of hallopeau- variant of palmoplantar psoriasis is also present.

Psoriasis in AIDS[30]

Incidence of psoriasis in AIDS patient is 1.3% to 2.5%. They may have more severe and sudden exacerbations. Extensive erythrodermic psoriasis may occur. Palmoplantar involvement, flexural (inverse) psoriasis, and psoriatic arthritis were found to be more frequent in patients who developed psoriasis after the HIV infection.

LICHEN PLANUS[31]

Violaceous flat topped papules, usually pruritic are seen. Network of fine white lines seen on the surface of papules.

Sites:

There is a predilection for flexor surface of wrists, trunk, thigh and genitalia[32]. Palmoplantar lichen planus is also common. Oral lesions are also common. Involvement of oesophagus is rare. Lip, eyelid, and vulva involvement are also reported. Nail changes can occur. Oral involvement with nail changes may be the sole manifestation in some cases.

Clinical presentation[33,

Lichen planus have violaceous flat topped papules with marked pruritis along with fine white lines on the surface of papules called as Wickham striae. The oral lesions of lichen planus[35, 36] are either present

as sole manifestation of the disease or associated with cutaneous involvement. They usually involve the buccal and tongue mucosa and most often consist of a lace like, reticular network of white coalescent papules. Plaque-like, atrophic, papular, erosive, and bullous lesions are also noted.

The nails are involved in about 10% of cases[37] and show roughening, longitudinal ridging, and, rarely, thinning and destruction. Pterygium formation is a frequent finding[38]

Clinical variants[39]

Atrophic, annular, hypertrophic, linear, zosteriform, erosive, oral, actinic, follicular, erythematous and bullous variants.

Pathogenesis[40]

Familial cases are rare and associated with HLA-D7. Non familial cases are associated with HLA-DR1. There is an increased frequency of HLA-DR6 in patients with Hepatitis C virus-associated oral lichen planus.

Lichen planus is rare in children. Lichen planus has been reported in association with immunodeficiency states. Cell-mediated immune reactions appear to be important in the pathogenesis of lichen planus.

Histopathology[41, 42]

There is increased number of Langerhans cells in the epidermis in earliest lesion. In old lesions, the cellular infiltrate is scant but the number of melanophages are increased in number.

The histopathological features of lichen planus includes compact orthokeratosis, wedge shaped hypergranulosis, Irregular acanthosis with saw toothed rete ridges. Band like dermal lymphocytic infiltrate, basal cell vacuolation and civatte bodies are the characteristic features of lichen planus.

Wickham's striae is caused by a focal increase in the thickness of the granular layer and of the total epidermis.

Civatte bodies otherwise known as eosinophilic colloid bodies. They are PAS positive and diastase resistant. They are seen in papillary dermis.

There may be a small cleft between dermis and epidermis noted due to basal cell vacuolation. It is known as Caspary Joseph spaces.

Variants of lichen planus[43, 44]

1. **Hypertrophic lichen planus**[45]
2. **Lichen planopilaris**[46]
3. **Ulcerative lichen planus**
4. **Lichen planus pigmentosus**[47, 48]

Hypertrophic lichen planus[45]

Hypertrophic lichen planus is the most common variant and common site is shins. It may present as single or multiple pruritic plaque or verrucous lesion.

Histopathology

Hypertrophic lichen planus show acanthosis, papillomatosis, hypergranulosis, and hyperkeratosis. The interface vacuolar changes are discrete and often limited to the base of the rete ridge. There is variable number of eosinophils in the absence of drug history

Lichen planopilaris[46]

Lichen planopilaris is the folliculotropic variant of lichen planus. It predominantly involves scalp. Axillae and pubic region also get involved. In the scalp it causes scarring alopecia of scalp Graham-little syndrome-lichen planopilarias with typical lesions of lichen planus of skin, nail, mucous membrane.

Ulcerative lichen planus

Ulcerative lichen planus is a rare variant of lichen planus. Patient presents with bullae, ulceration and erosion of feet resulting in scarring and loss of nail beds.

Lichen planus pigmentosus[47, 48]

Lichen planus pigmentosus is common in children and young adult. It is common during summer months and sun exposed areas particularly face.

Oral lichen planus[49]

Presents as papule, plaque or erosion

Overlap syndrome (lichen planus and lupus erythematosus)

Usually seen in sun exposed areas. Erythematous to purplish scaly patches and plaques with atrophy is seen.

Differential diagnosis[50]

1. Lichenoid keratosis
2. GVHD
3. Chronic discoid lupus erythematosus

Lichen planus should be differentiated from other diseases by lichenoid infiltrate and hydropic degeneration of the basal layer of the epithelium.

Lichen planus may be indistinguishable from lichenoid keratosis by clinicopathological correlation.

A lichen planus-like morphology is typical of the early stages of chronic graft versus-host disease.

Atrophic lesions may be confused with poikiloderma and chronic discoid lupus erythematosus. Histological features favoring the lichenoid reaction are high-level cytoid bodies and eosinophils within the dermal infiltrate.

PITYRIASIS RUBRA PILARIS[51, 52, 53]

Pityriasis rubra pilaris is an erythematous squamous disorder characterized by follicular keratotic papules and orange-red scaly plaques with islands of normal-appearing skin.

Clinical features[54]:

Pityriasis rubra pilaris present as generalized erythroderma, orangish scaly plaque and papule.

Common sites involved:

Palmo plantar keratoderma

Scaling of the face and scalp.

Knees and

Elbow

Types[55]:

Five types have recognized. Only three types are common

1. Type I classical adult type (55%)

2. Type III classical juvenile type (10%)

3. Type IV, the circumscribed juvenile type,

Histopathology[56, 57]

Epidermal changes in Erythematous lesions are acanthosis with broad and short rete ridges, spongiosis, thick suprapapillary plates, focal or confluent hypergranulosis and alternating orthokeratosis and parakeratosis oriented in both vertical and horizontal directions

Dermal changes includes mild superficial perivascular lymphocytic infiltrate and moderately dilated blood vessels, Erythrodermic lesions have thinned or absent cornified layer, plasma exudates, and diminished granular zone. Acantholysis is seen in some cases[58]

Differential Diagnosis[59]

Pityriasis rubra pilaris	Psoriasis
1. More prominent granular layer 2. Epidermal spongiosis 3. Inflammatory infiltrate. 4. Keratinocyte proliferation rate is very low	1. Presence of neutrophils 2. Munro micro abscesses, 3. Parakeratosis in mounds, 4. Thin suprapapillary plates, 5. Elongated rete ridges, 6. Tortuous blood vessels

LUPUS ERYTHEMATOSUS[60, 61, 62]

Lupus erythematosus is an immune disorder of connective tissue which occurs in middle-aged women. Lichenoid reaction pattern (interface dermatitis) is the most important feature in lupus erythematosus. Interphase dermatitis is absent in Tumid forms and lupus profundus.

Variants[63, 64]

Three major clinical variants.

1. chronic discoid lupus erythematosus-involves only the skin,
2. systemic lupus erythematosus- multisystem disease,
3. sub-acute lupus erythematosus - cutaneous lesions with mild systemic illness

Discoid lupus erethematosus[65]

In discoid lupus erythematosus sharply demarcated, erythematous, scaly patches are seen with follicular plugging.

Common sites involved

Face (in a butterfly distribution on the cheeks), neck, scalp (Cicatrial alopecia), eyelids.

Lips and oral mucosa- Labial mucosa, vermilian border of buccal mucosa[66], Hands, including the nails, are also involved.

Age

Occurs in middle aged women. Rare in children

Variants[67]

1. Hypertrophic variant
2. Annular lesions
3. Tumid lupus erythematosus (lupus erythematosus tumidus)
4. Lymphocytic infiltration of the skin (of Jessner and Kanof)
5. Linear lesions

Hypertrophic variant of DLE[68]

Hypertrophic variant of DLE usually present as verrucous lesion and it affect hand and face frequently which may be mistaken for verrucous carcinoma clinically. Histopathology of hypertrophic lesions show prominent hyperkeratosis and epidermal hyperplasia. Elastic fibers are often present between epidermal cells at the tips of the epidermal down growths.

Annular lesions

Develops in patients with all forms of lupus erythematosus. Rowell's syndrome is characterized by a positive test for rheumatoid factor and speckled antinuclear antibodies.

Papulonodular lesions associated with diffuse dermal mucin are uncommon manifestations of chronic cutaneous lupus erythematosus. Mucinosis has presented as periorbital edema. This variant is part of the spectrum of tumid lupus erythematosus.

Tumid lupus erythematosus (lupus erythematosus tumidus)

Clinical presentation

Tumid lupus may present as erythematous, urticaria-like, non-scarring plaques and papules. Lesions may have a fine scale and they are pruritic.

Sites of involvement

Unilateral severe eyelid erythema and edema are unique manifestations of this variant. Sun-exposed areas like face, neck and upper trunk are involved. Tumid lupus develops following the use of antiretroviral therapy for HIV infection. Tumid lupus may present with papulonodular type of skin lesions.

Histopathology of Tumid lesions

Tumid lesions show increased dermal mucin, subepidermal edema and sparse inflammatory cell infiltrate along with few scattered neutrophils. Epidermal involvement may be seen in the form of slight epidermal atrophy.

Lymphocytic infiltration of the skin (of Jessner and Kanof)

It is a variant of DLE. Histopathological and clinical features of this condition is similar to Tumid Lupus Erythematosus.

Linear lesions

Linear lesions are common in lines of blaschko. These lesions are common in face. The trunk has also been involved

Histopathology of DLE

Characteristic histological findings of DLE are

1. Lichenoid reaction pattern

2.Colloid bodies

3.Vacuolar change

4. Superficial and deep dermal infiltrate of inflammatory cells

5. Inflammatory cells around pilosebaceous follicle

Additional changes includes hyperkeratosis, follicular plugging and atrophy of the malphigian layer.

Early lesions show plasma cells, neutrophils and nuclear dust in the superficial dermis in active lesion. Plasma cells are prominent in oral

lesions. Superficial edema is also seen in the papillary dermis in some early lesions.

Older lesions show increased amount of mucin and progressive thickening of the basement membrane, which is best seen with a PAS stain.

Electron microscopy

Disorganization of the basal layer, scattered apoptotic keratinocytes, and reduplication of the basement membrane. Indeterminate cells, dendritic macrophages and unusual dendritic cells are the electron microscopic features in the dermis.

Sub-acute lupus erythematosus[69]

Sub acute lupus erythematosus is characterized by recurring, photosensitive, non-scarring lesions which may be annular or papulosquamous in type.

Sites of involvement

Face, neck, and extensor surfaces of the arms and upper trunk are the most common sites of involvement. Arcuate plantar plaques and facial lesions are also noted.

Clinical presentation

The patients have skin lesions, mild systemic illness with musculoskeletal complaints and serological abnormalities.

Histopathology

Sub-acute lupus erythematosus show epidermal atrophy, more basal vacuolar change, dermal edema and superficial mucin than in discoid lupus.

There is less hyperkeratosis, follicular plugging, basement membrane thickening and cellular infiltrate. Vacuolar degeneration and lymphocytic infiltrate are more common in upper dermis. Apoptotic keratinocytes (Civatte bodies) are sometimes quite prominent in sub-acute lupus erythematosus. The papulosquamous form of sub-acute lupus erythematosus has no distinguishing features to permit differentiation from the discoid form.

Systemic lupus erythematosus (SLE) [70, 71]

It is a wide spread systemic disorder. The changes in the skin are part of the disorder. Four clinical manifestations are particularly important as criteria for the diagnosis of SLE: skin lesions, renal involvement, joint involvement, and serositis.

Clinical presentation

Systemic lupus erythematosus is most common on the face (malar areas). These lesions are usually more extensive and less well defined than those of discoid lupus erythematosus. Scarring is an important complication.

It may spread to the chest and other parts of the body. Facial edema is another presentation.

Chilblain lupus.

Chilblain lupus results from microvascular injury of SLE. Digits, calves and heels are involved. A verrucous form of chilblain lupus has been reported in an adult.

Histopathology[72]

The cutaneous lesions of systemic lupus erythematosus show prominent vacuolar change involving the basal layer. Civatte body formation is usually not a feature.

Edema, small hemorrhages, and a mild infiltrate of inflammatory cells, principally lymphocytes are present in the upper dermis. Mucin can be demonstrated by special stains and its presence may be helpful in distinguishing the lesions of SLE from polymorphic light eruption.

‘Cutaneous lupus mucinosis’ has been used for cases with abundant dermal mucin. Leukocytoclastic type of vasculitis is sometimes present. It may be complicated by thrombosis. Perivascular inflammation is present, allowing a distinction from lichen planopilaris. Chilblain lupus shows lichenoid (vacuolar interface) reaction overlying lymphocytic vasculitis involving both the superficial and deep plexuses. Mucosal lupus, which affects predominantly the lips and buccal mucosa show a band-like and deeper perivascular lymphocytic infiltrate and some plasma cells is present.

Variants of systemic lupus erythematosus[71, 72]

1. Neonatal lupus erythematosus
2. Bullous lupus erythematosus
3. Lupus panniculitis

Neonatal lupus erythematosus

Neonatal lupus erythematosus is characterized by a transient lupus dermatitis developing in the neonatal period. It is accompanied by a variety of hematological and systemic abnormalities, including congenital heart block.

Cutaneous lesions resemble those seen in sub-acute cutaneous lupus erythematosus. Scarring, atrophy, and depigmentation may be seen.

The histological features resemble those seen in sub-acute lupus erythematosus.

Bullous lupus erythematosus

Skin eruption that clinically and histologically resembles dermatitis herpetiformis. Histologically bullous lupus erythematosus show sub epidermal blisters with neutrophils in the papillary dermis and some lymphocytes around vessels in the superficial plexus.

Immunofluorescence

Linear or mixed linear and granular deposits of IgG are found along the basement membrane zone. IgA and/or IgM may also be present. Electron microscopy confirms that the split is below the lamina densa.

Lupus panniculitis (lupus profundus)

Clinical presentation

Lupus panniculitis presents as firm subcutaneous nodules which may vary in size from 1 to 4 cm.

Sites of involvement

Head, neck, arms, abdominal wall, thighs, or buttocks are the common sites of involvement. Periorbital edema is the most frequent manifestation of lupus profundus.

PARAPSORIASIS[73, 74]

Parapsoriasis is a heterogeneous group of asymptomatic, scaly dermatoses which is similar to psoriasis clinically.

Various entities in parapsoriasis

1. Pityriasis lichenoides [75],
2. Small plaque parapsoriasis,
3. Large plaque parapsoriasis

Pityriasis lichenoides[75]

Pityriasis lichenoides shows features of both chronic lymphocytic vasculitis and the lichenoid tissue reaction. It is not considered as a variant of parapsoriasis in recent days.

Small plaque parapsoriasis

Clinical presentation

Small plaque parapsoriasis present as small pink to yellow scaly patches. Oval or elongated, often finger print-like patches are also noted. The size of the lesion may vary from one to five centimetres.

Sites of involvement

Symmetrical involvement of the trunk and the proximal portions of the extremities and tension lines of the skin are seen.

Pathogenesis

The inflammatory infiltrate in small plaque parapsoriasis is T-lymphocytes with a small. $CD8^+$ (cytotoxic-suppressor) T-lymphocytes plays a role in pathogenesis. Langerhans cells are increased in the epidermis and dermis.

Clinical presentation

It differs from psoriasis by the absence of dilated vessels in the papillary dermis and the absence of neutrophil exocytosis. Chronic superficial dermatitis lacks a thin suprapapillary plate and there is a paucity of mitoses in the keratinocytes. Lymphocytes with a normal mature morphology are often found in the papillary dermis in chronic superficial dermatitis. This feature, combined with the regular acanthosis and focal parakeratosis, allows a diagnosis to be made in many cases with the scanning power of the light microscope.

Large plaque parapsoriasis,

Large plaque parapsoriasis show features of psoriasiform epidermal hyperplasia. In atrophic epidermis, there is thin epidermis with loss of the rete ridge pattern is seen. Basal vacuolar change is noted.

Sushil Chichani et al[77] studied 78 cases of papulosquamous skin lesions. In that psoriasis was the most common skin lesion followed by lichen planus. It was more common in 10-30 years of age. Male predominance was noted. Histopathological features were not studied.

Chaudary raju et al[78] studied 179 cases of papulosquamous lesions. In that clinicopathological features were compared. Lichen planus show 92% correlation followed by psoriasis and pityriasis rubra pilaris. In this study common age group was 20-30 years. Male predominance was noted. Extremities and trunk were the most common sites of involvement.

S.D.Chavhan et al[79] studied 61 cases of papulosquamous skin lesions. In this study lichen planus was the most common skin lesion followed by psoriasis. 20-40 years was the most common age of presentation. Hypergranulosis, vacuolar degeneration and were the most common histological features in lichen planus. Parakeratosis and Munro micro abscess were the most common histological picture in psoriasis.

Raja Sekhar Reddy et al[80] studied papulosquamous skin lesion in 80 patients. Psoriasis is the most common lesion followed by lichen planus. In this study 80% were males. In psoriasis predominant variant was psoriasis vulgaris followed by chronic plaque psoriasis. Acanthosis, parakeratosis and club shaped rete ridges were the common histological

features in psoriasis. In lichen planus classical type was the most common type followed by hypertrophic lichen planus. Hyperkeratosis, orthokeratosis, saw toothed rete ridges were the most common histological presentation.

Manish Juneja et al[81] studied the pathological alterations in lichen planus. They compared the lichen planus and lichenoid reaction using the total number of mast cells, epithelial thickness, PAS positive membrane thickness, basement membrane disruption area and vascularity. Number of mast cells were significantly higher in oral lichen planus. Reduced epithelial thickness was characteristic of oral lichen planus. Basement membrane irregularities were the feature of oral lichen planus.

Periodic Acid Schiff stains basement membrane, glycogen, some mucins and mucopoly saccharides. PAS also stains various inclusions and granules, secretions and colloid bodies.

In lichen planus, basement membrane show thickening and focal fragmentation. Since PAS highlights basement membrane, these changes are better visualized. PAS also stains colloid bodies.

Alcian blue is also a useful stain in lichen planus. Immunofluorescence is also helpful in lichen planus.

MATERIALS AND METHODS

STUDY DESIGN- Present study is the prospective study conducted in Department of Pathology during the period of July 2016 to june 2017. Ethical committee clearance was obtained on April 2016

STUDY PERIOD- July 2016 to June 2017

INCLUSION CRITERIA

1. Clinically suspected papulosquamous skin lesions (psoriasis, lichen planus, lupus erythematosus, parapsoriasis, and pityriasis rubra pilaris
2. All age
3. Both sex
4. Lesions occurring at all sites

EXCLUSION CRITERIA

1. Other papulosquamous disorders
2. Papulonodular skin lesions
3. Pregnancy
4. Patients having high bleeding time, clotting time
5. Patients having high keloidal tendency

6. Patients with recurrent lesions
7. Patients with chronic skin lesions
8. HIV patients
9. Antenatal patients

PROCEDURE

In patients with clinically suspected papulosquamous squamous skin disorder 5mm punch biopsy taken. It was then placed in a bottle containing 10% formalin and shifted to Pathology Department. Periodic Acid Schiff stain has performed later in suspected lichen planus cases.

LIGHT MICROSCOPY

The specimen was fixed in formalin for 12 to 24 hours and then subjected to processing and embedding routinely. Skin biopsy was oriented perpendicular to the cutting surface, so that all the layers of the skin are visualized. Sections of 3 to 4 microns were cut. They were stained with haematoxylin and eosin stain.

SPECIAL STAIN- PERIODIC ACID SCHIFF

In clinically suspected lichen planus cases special stain PAS was performed to look for basement membrane thickening and its disintegration.

PRINCIPLE

PAS stain was used for demonstration of basement membrane. Tissue sections are first oxidized by periodic acid. Oxidative process results in formation of aldehyde group. Then aldehyde groups are detected by Schiff reagent. A colorless unstable dialdehyde group was later converted to magenta colored compound.

PERIODIC ACID SCHIFF

After overnight incubation bring the sections to water.

SECTIONS TO WATER

1. Sections were deparaffinized with xylene for 30 minutes as 3 changes of 10 minutes each.
2. Sections were dehydrated in absolute alcohol for 5minutes with 2 changes.
3. Sections were washed in tap water for 5 minutes.
4. Slides were then rinsed with distilled water for 2 minutes.

PERIODIC ACID SCHIFF STAINING STEPS

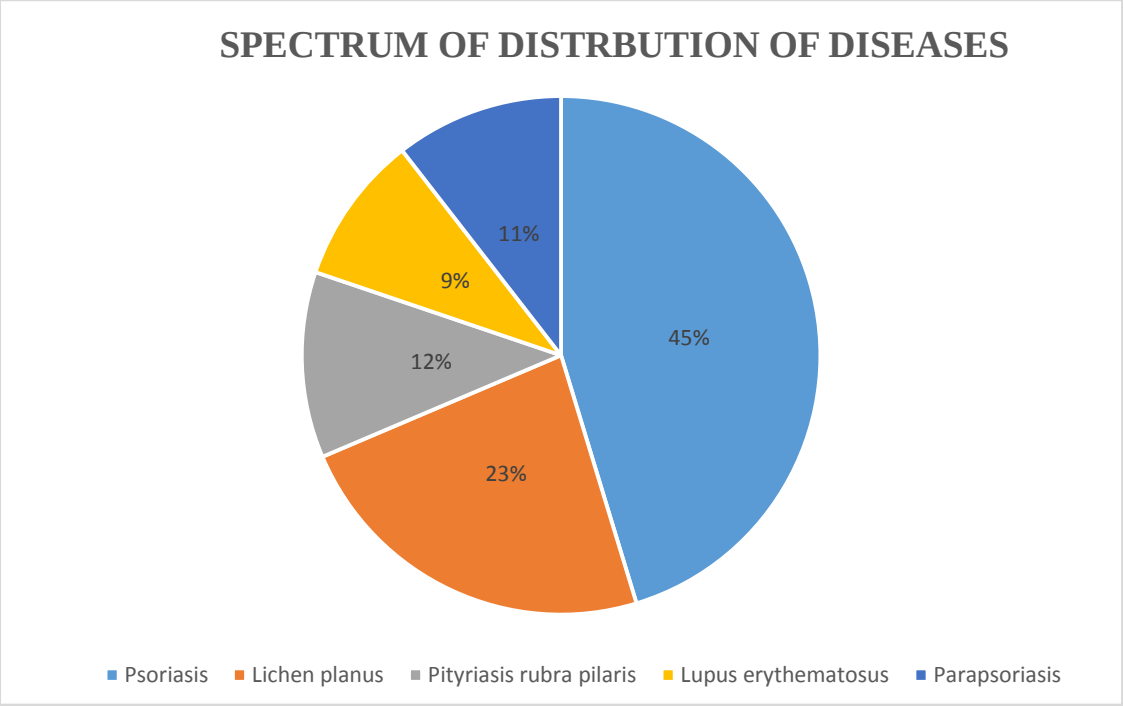
1. Periodic acid for 5 minutes
2. Wash with tap water for 5 minutes
3. Schiff reagent for 15 minutes
4. Wash with tap water-5 minutes

5. Haematoxylin for 15 minutes
6. Wash with tap water-5-10 minutes(till blueing)
7. Differentiate with 1% acid alcohol
8. Wash in running water for 15 minutes
9. Dry the sections
10. Mount the sections with DPX

OBSERVATION AND RESULT

TABLE-1 SPECTRUM OF DISTRIBUTION OF DISEASES

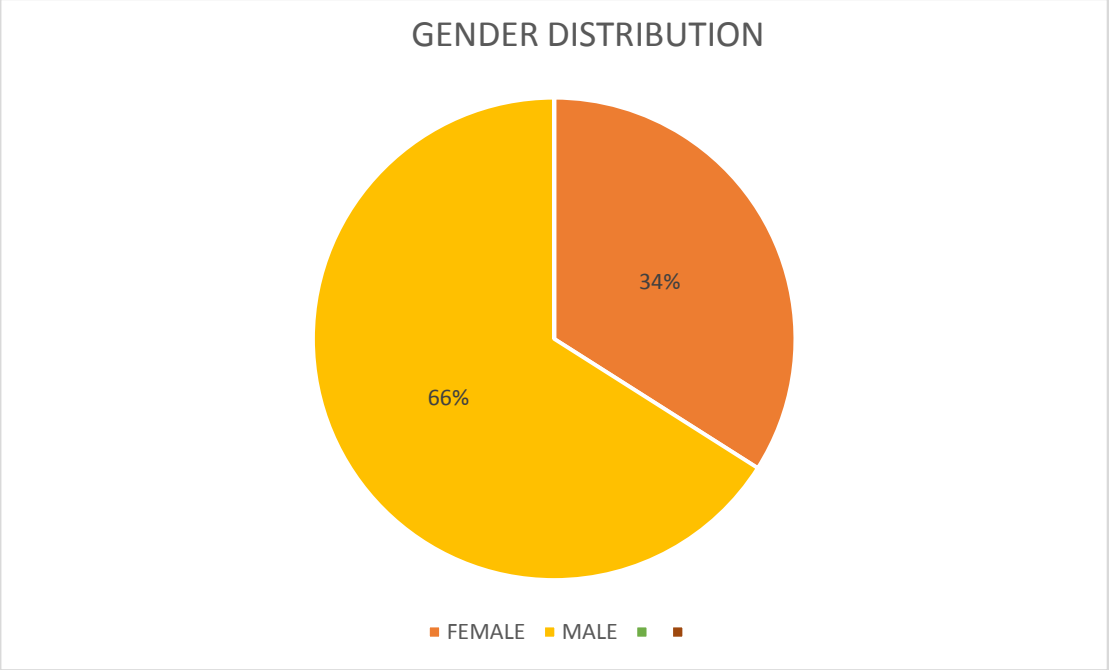
HISTOPATOLOGICAL DIAGNOSIS	NUMBER OF CASES	PERCENTAGE
PSORIASIS	39	45.3%
LICHEN PLANUS	20	23.3%
LUPUS ERYTHEMATOSUS	8	9.3%
PITYRIASIS RUBRA PILARIS	10	11.6%
PARAPSORIASIS	9	10.5%
TOTAL	86	100%



In the present study psoriasis was the predominant lesion (45%) followed by Lichen planus.

TABLE-2 GENDER DISTRIBUTION

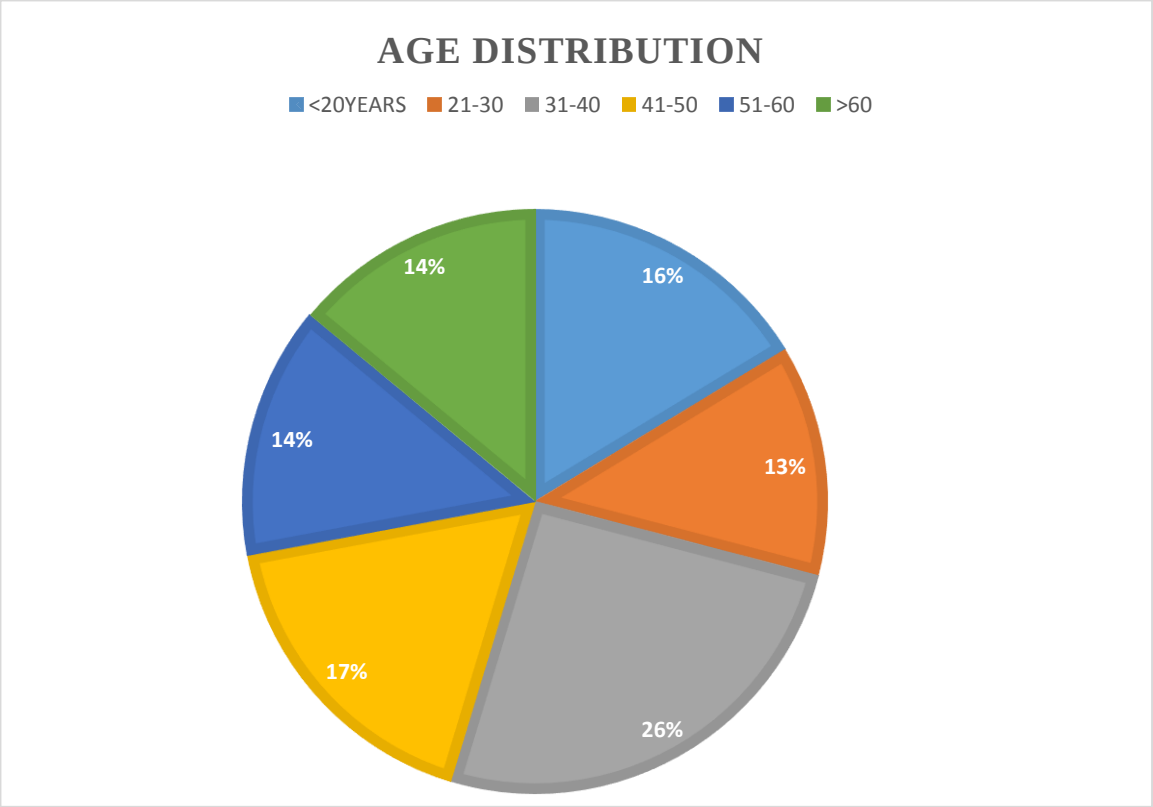
SEX	NUMBER OF CASES	PERCENTAGE
MALE	57	66.28%
FEMALE	29	33.72%
TOTAL	86	100%



In the present study, male predominance was seen. The sex ratio was 1.9:1(M: F).

TABLE-3 AGE DISTRIBUTION

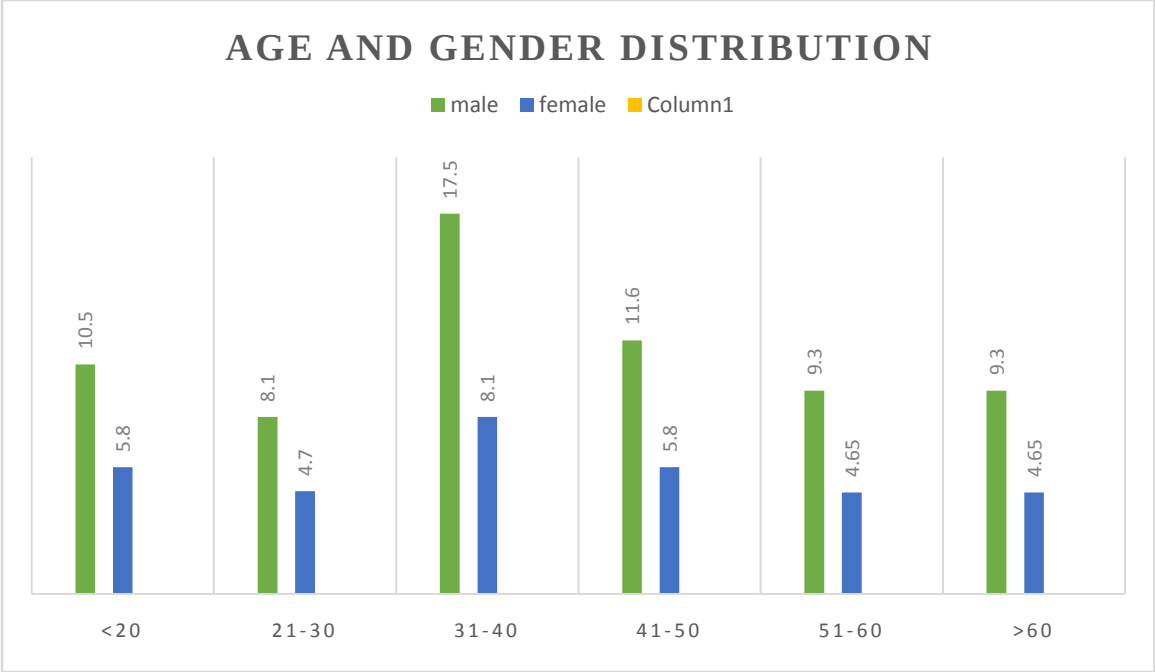
AGE GROUP	NUMBER OF CASAS	PERCENTAGE
<20 YEARS	14	16.3%
21-30	11	12.8%
31-40	22	25.6%
41-50	15	17.4%
51-60	12	13.95%
>60	12	13.95%
TOTAL	86	100%



Most common age of presentation was 30 to 40 years.

TABLE-4 AGE AND GENDER DISTRIBUTION

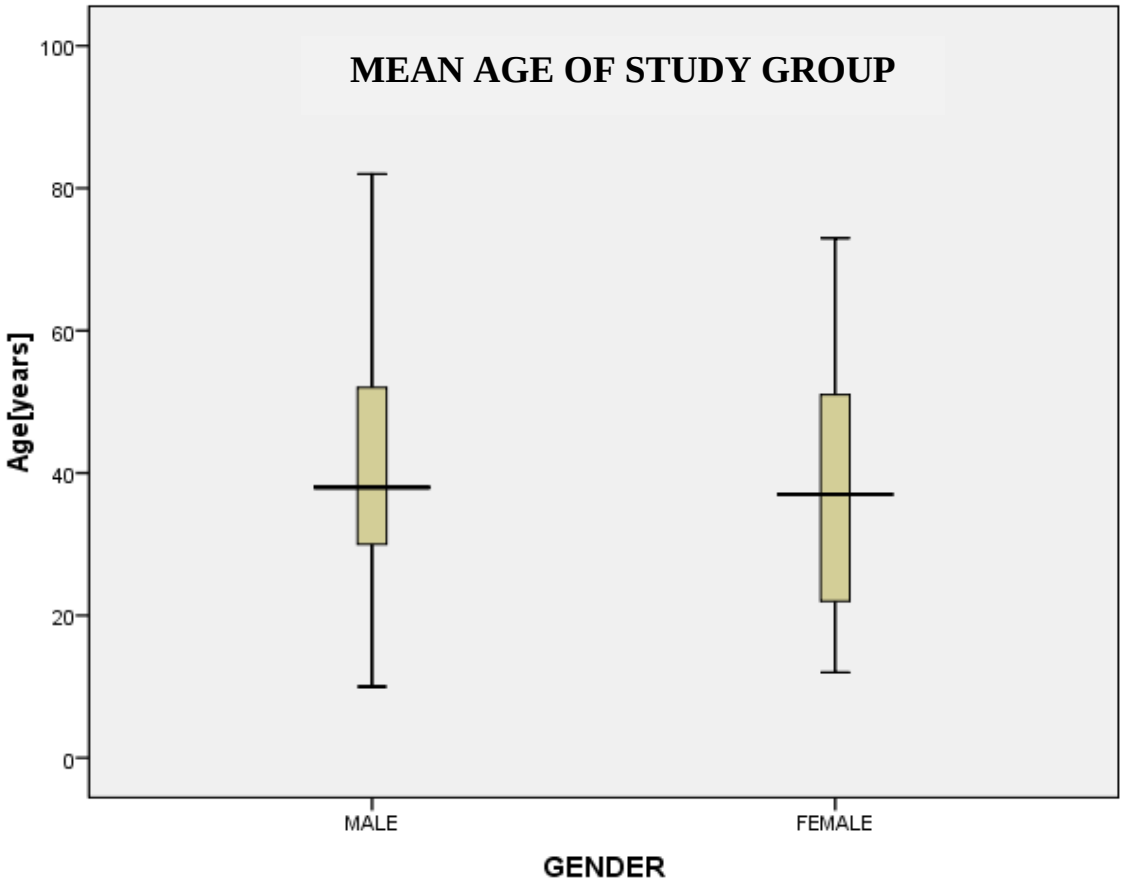
AGE GROUP	GENDER				TOTAL	PERCENTAGE
	MALE		FEMALE			
	NUMBER	%	NUMBER	%		
<20	9	10.5	5	5.8	14	16.3
21-30	7	8.1	4	4.7	11	12.8
31-40	15	17.5	7	8.1	22	25.6
41-50	10	11.6	5	5.8	15	17.4
51-60	8	9.3	4	4.65	12	13.95
>60	8	9.3	4	4.65	12	13.95
Total	57	66.3	29	33.7	86	100



Most commonly affected age group was 21 to 40 years. The median age was 39 years. Youngest age was 10 year male. The oldest age was 82 year male.

TABLE-5 MEAN AGE OF STUDY GROUP

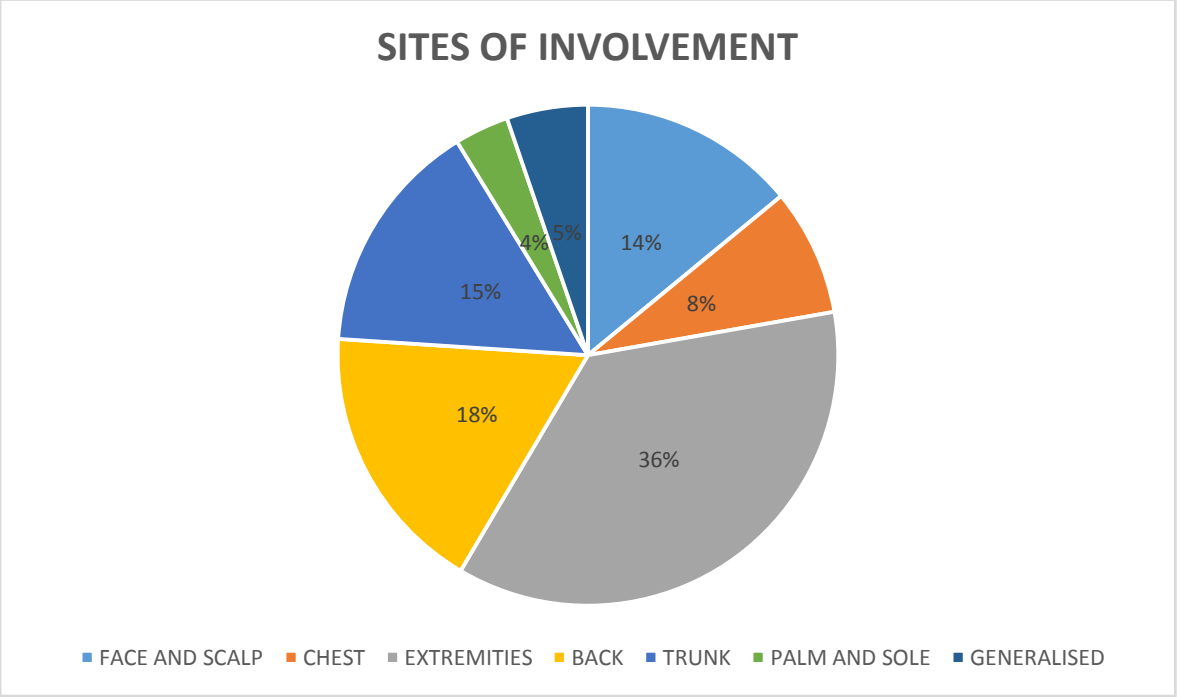
Mean Age with study Groups								
Age	Mean	SD	Std. Error	95% CI for Mean		Minimum	Maximum	sig
				Lower	Upper			
MALE	39.96	17.231	2.282	35.39	44.54	10	82	
FEMALE	39.66	16.942	3.146	33.21	46.1	12	73	>0.05
Total	39.86	17.034	1.837	36.21	43.51	10	82	



Mean age of presentation was 39 years.

TABLE-6 SITES OF INVOLVEMENT

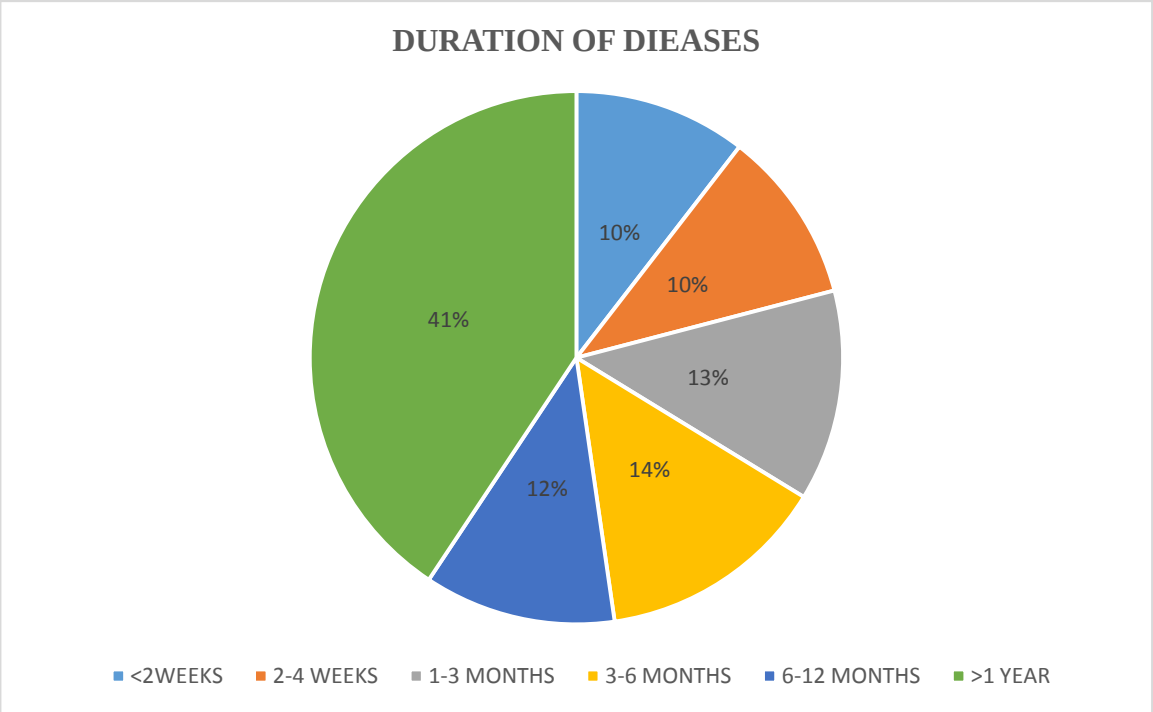
SITE OF INVOLVEMENT	NUMBER OF CASES	PERCENTAGE
FACE AND SCALP	12	13.95%
CHEST	7	8.14%
EXTREMITIES	31	36.05%
BACK	15	17.44%
TRUNK	13	15.12%
PALM AND SOLE	3	3.49%
GENERALISED	5	5.81%
TOTAL	86	100%



Extremities and back were the most commonly affected site. The lesion was most commonly seen in extremities. It was least commonly seen in palm and sole.

TABLE-7 DURATION OF DISEASES

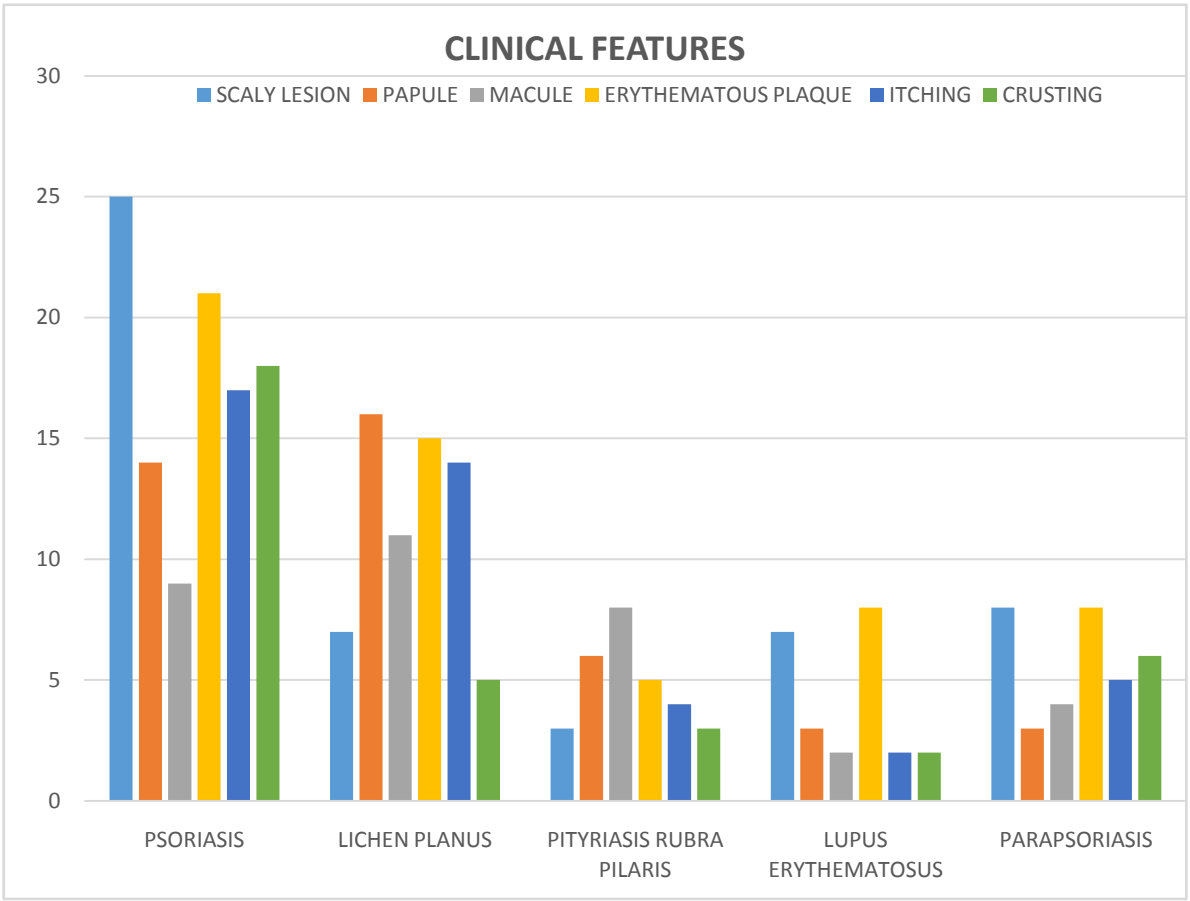
DURATION	NUMBER OF CASES	PERCENTAGE
<2 WEEKS	9	10.5%
2-4 WEEKS	9	10.5%
1-3 MONTHS	11	12.8%
3-6 MONTHS	12	13.9%
6-12 MONTHS	10	11.6%
>1 YEAR	35	40.7%
TOTAL	86	100%



Most cases present in 14 months of duration. The earliest lesion was at 10 days. The maximum duration was 7 years.

TABLE-8 CLINICAL FEATURES

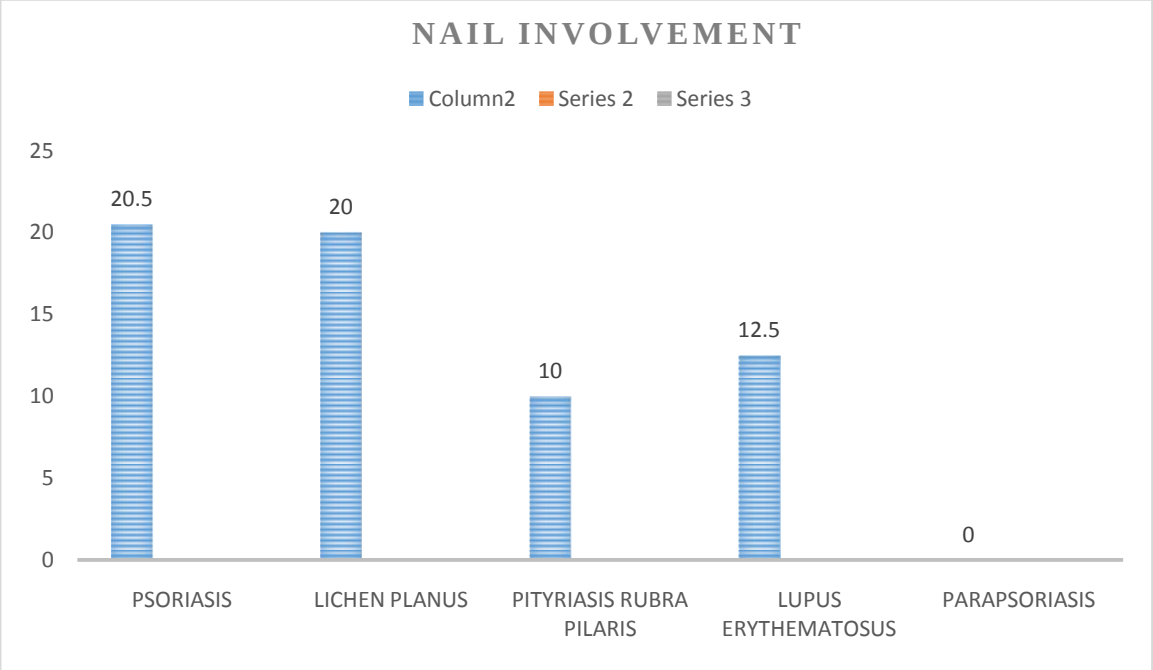
Diagnosis	Scaly lesion	Papule	Macule	Erythematous plaque	Itching	Crusting
Psoriasis	25	14	9	21	17	18
Lichen planus	7	16	11	15	14	5
Pityriasis rubra pilaris	3	6	8	5	4	3
Lupus erythematosus	7	3	2	8	2	2
Parapsoriasis	8	3	4	8	5	6



Most common primary symptom was itching and most common clinical presentation was scaly lesion and erythematous plaque.

TABLE-9 NAIL INVOLVEMENT

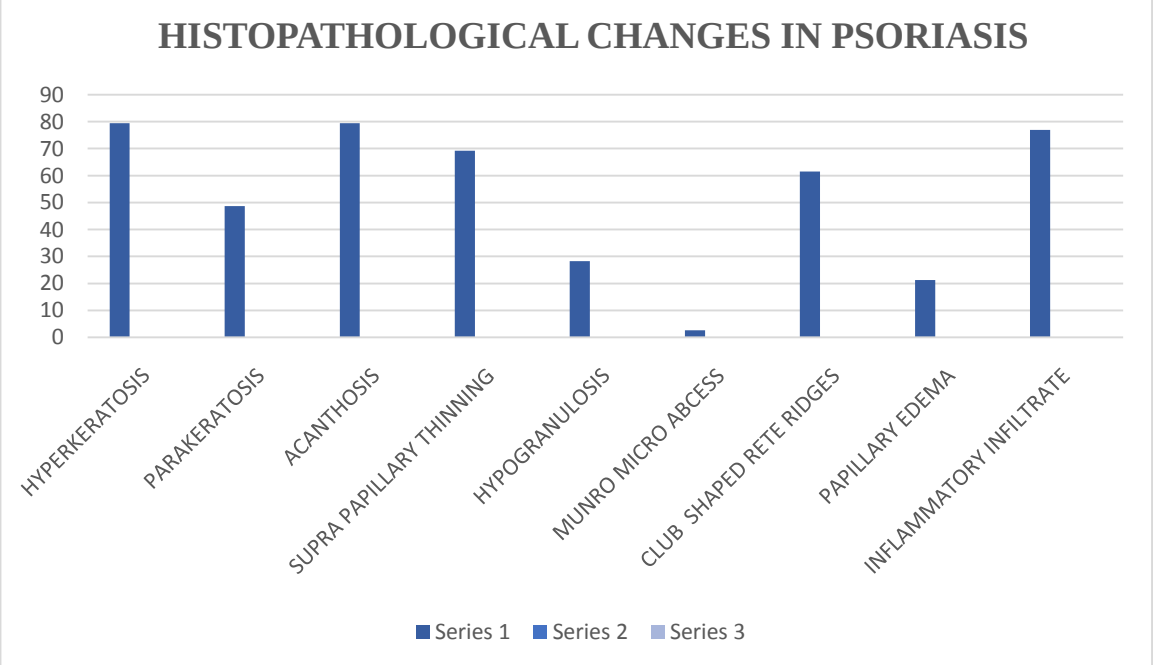
DISEASE	NO OF CASES	PERCENTAGE
PSORIASIS	8	20.51%
LICHEN PLANUS	4	20%
PITYRIASIS RUBRA PILARIS	1	10%
LUPUS ERYTHEMATOSUS	1	12.5%
PARAPSORIASIS	0	0



Nail involvement was most common in psoriasis followed by lichen planus.

TABLE-10 HISTOPATHOLOGICAL CHANGES IN PSORIASIS

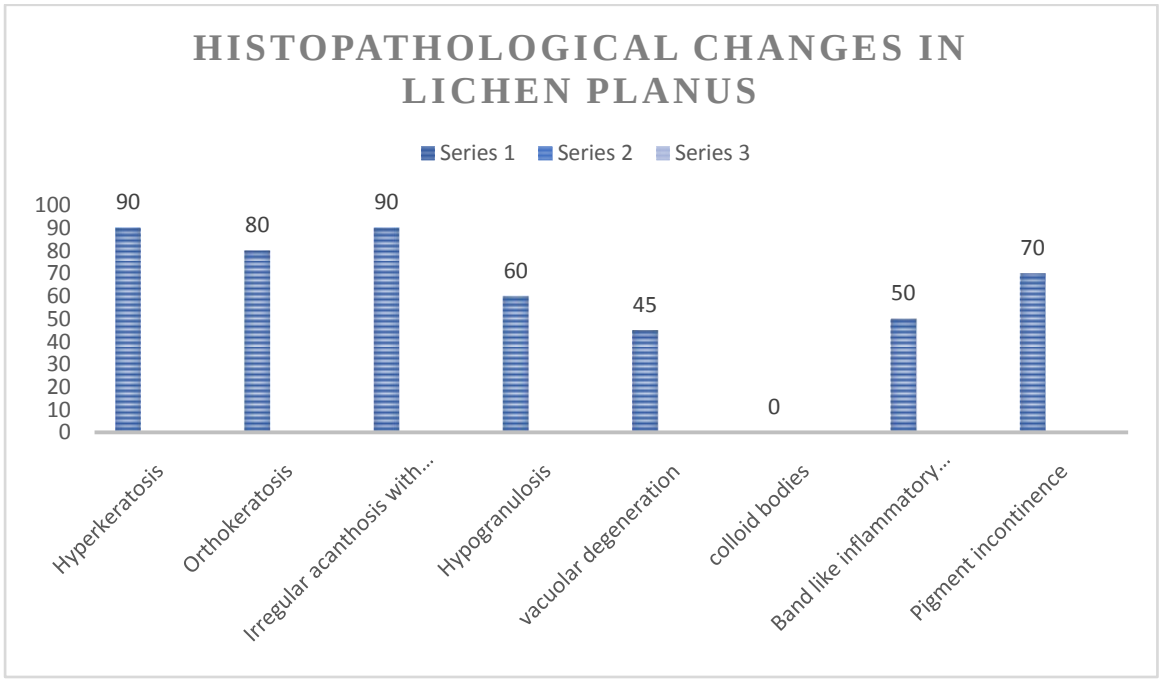
NO	HISTOPATHOLOGICAL CHANGES	NUMBER OF CASES	PERCENTAGE
1	Hyperkeratosis	31	79.49%
2	Parakeratosis	19	48.72%
3	Acanthosis	31	79.49%
4	Supra papilary thinning	27	69.23%
5	Hypogranulosis	11	28.20%
6	Munro micro abscess	1	2.56%
7	Club shaped rete ridges	24	61.53%
8	Papillary edema	11	28.20%
9	Inflammatory infiltrate	30	76.92%



Hyperkeratosis, acanthosis, club shaped rete ridges and suprapapillary thinning were the most common histopathological features in psoriasis.

TABLE-11 HISTOLOGICAL CHANGES IN LICHEN PLANUS

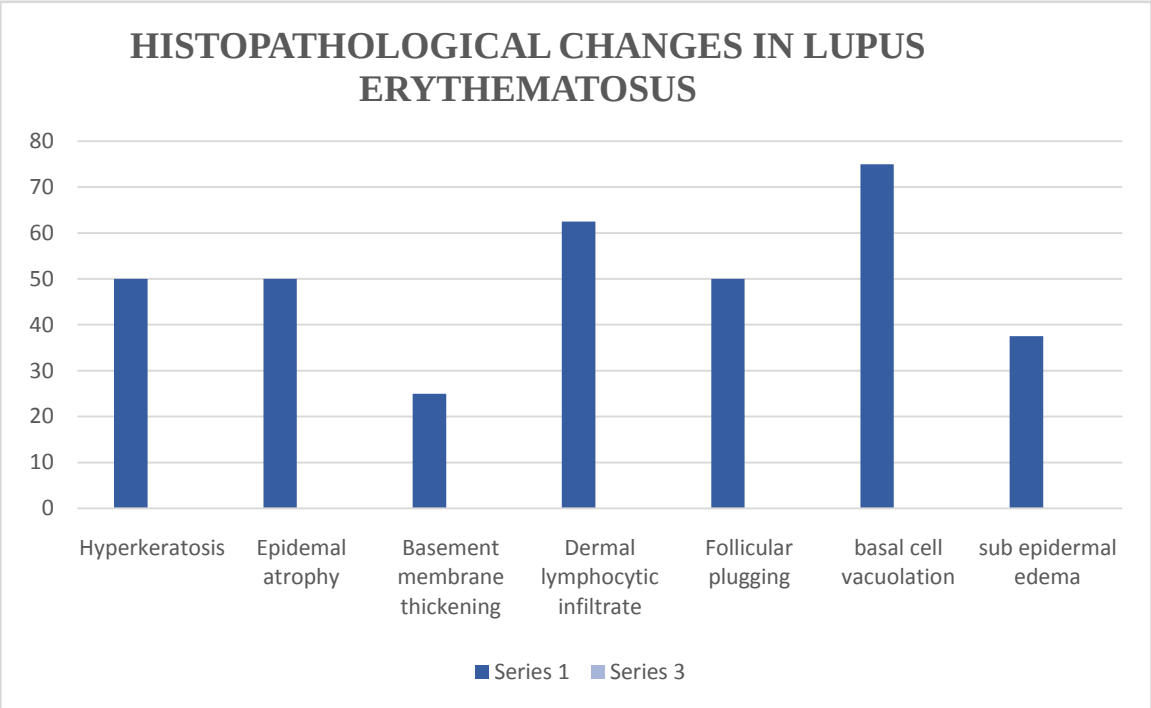
S NO	PATHOLOGICAL CHANGES	NO OF CASES	PERCENTAGE
1	Hyperkeratosis	18	90%
2	Orthokeratosis	16	80%
3	Irregular acanthosis with saw toothed rete ridges	18	90%
4	Hypergranulosis	12	60%
5	Vacuolar degeneration	9	45%
6	Colloid bodies	0	0
7	Band like inflammatory infiltrate	10	50%
8	Pigment incontinence	13	70%



Hyperkeratosis and irregular acanthosis with saw toothed rete ridges were the most common histological feature in lichen planus.

TABLE-12 HISTOPATHOLOGICAL CHANGES IN LUPUS ERYTHEMATOSUS

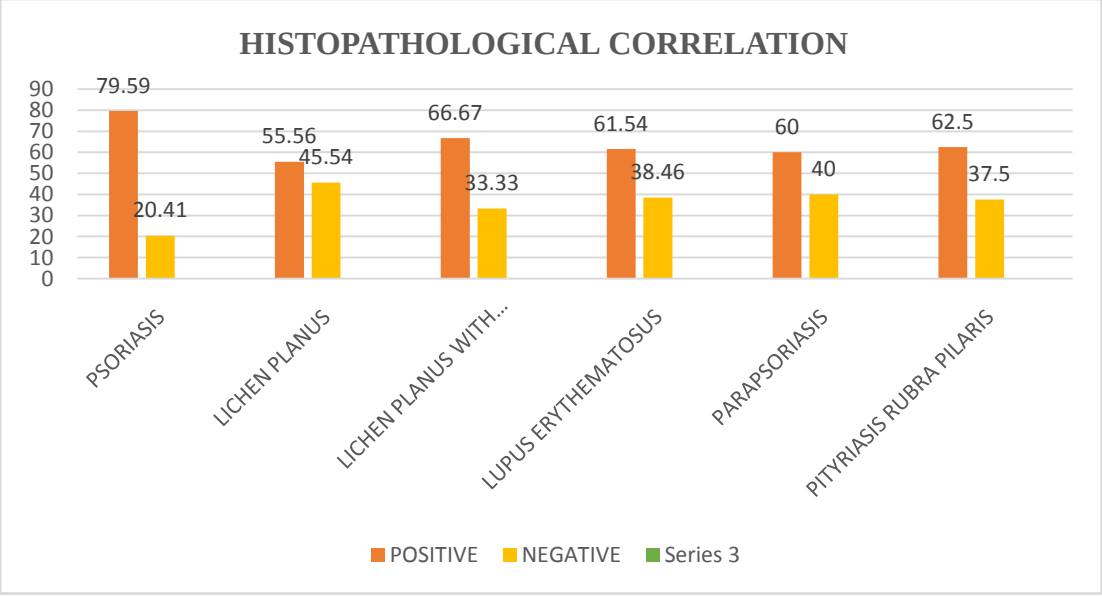
S.No	Histopathology	No of cases	Percentage
1	Hyperkeratosis	4	50%
2	Epidermal atropy	4	50%
3	Basement membrane thickening	2	25%
4	Dermal lymphocytic infiltrate	5	62.5%
5	Follicular plugging	4	50%
6	Basal cell vacuolation	6	75%
7	Sub epidermal edema	3	37.5



Basal cell vacuolation and dermal lymphocytic infiltrates were the most common histological picture in lichen planus.

TABLE-13 CLINICO HISTOPATHOLOGICAL CORRELATION

Disease	Clinical diagnosis	Histopathological correlation			
		Positive correlation	%	Negative correlation	%
Psoriasis	49	39	79.59%	10	20.41%
Lichen planus	36	20	55.56%	16	45.54%
Lichen planus with special stain application	36	24	66.67%	12	33.33%
Pityriasis rubra pilaris	16	10	62.5%	6	37.5%
Parapsoriasis	15	9	60%	6	40%
Lupus erythematosus	13	8	61.54%	5	38.46%
Total	129	86	66.66	43	33.33



From the above table psoriasis show 80% positive correlation, lichen planus show 56% positive correlation, lichen planus with PAS stain show 67% positive correlation, pityriasis rubra pilaris show positive correlation of 63% lupus erythematosus show positive correlation of 62% and parapsoriasis show 60% positive correlation.

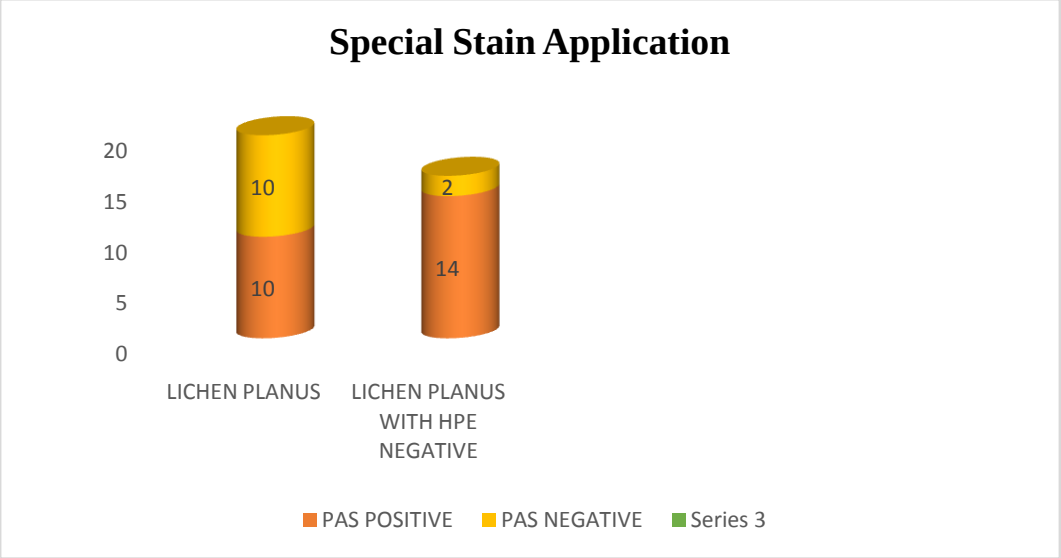
TABLE-14 SPECIAL STAIN APPLICATION

PARAMETERS	PAS POSITIVE	PAS NEGATIVE	TOTAL
HPE POSITIVE CORRELATION	10	10	20
HPE NEGATIVE CORRELATION	14	2	16
TOTAL	24	12	36

chi-square = 5.62

degrees of freedom = 1

probability = 0.018



Periodic Acid Schiff was performed in 36 cases of clinically suspected lichen planus cases. In this 24 cases showed PAS positivity.12 cases were PAS negative. Chi square test was performed. The chi square value is 5.62. Degree of freedom is 1. The p value is <0.05 which showed statistically significant correlation. Thus, applying PAS stain in clinically suspected lichen planus cases would increase the diagnostic accuracy.

COLOUR PLATES

PSORIASIS

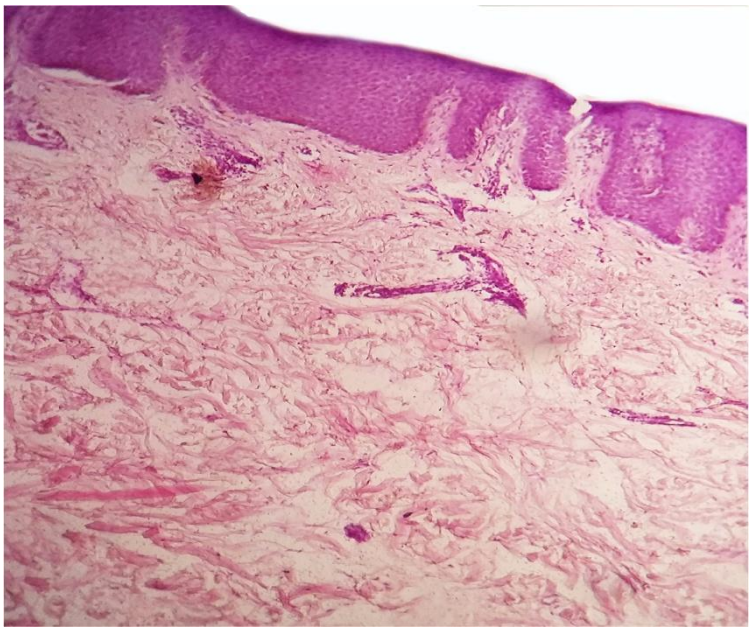


Figure-1 H&E picture showing club shaped rete ridges and suprapapillary thinning of psoriasis - Low power view (x10X)

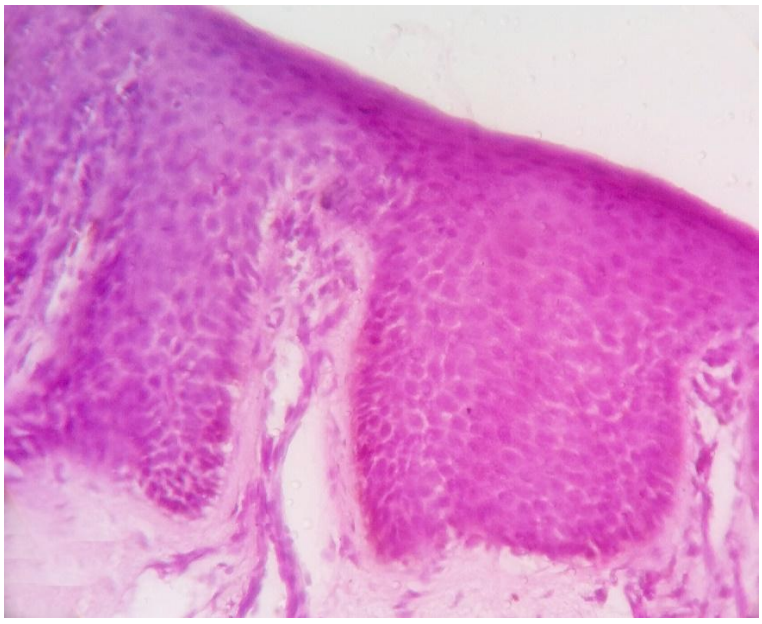


Figure-2 H&E picture showing club shaped rete ridges and suprapapillary thinning and parakeratosis of psoriasis - High power view (x40X)

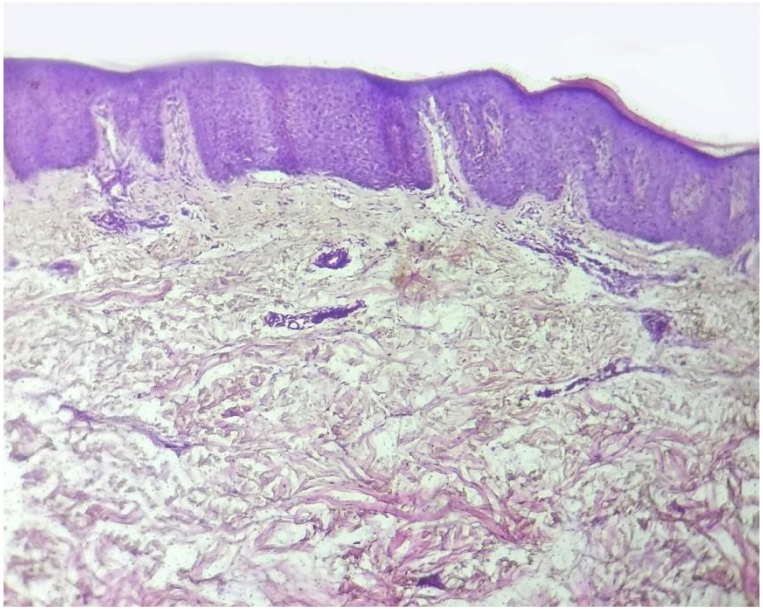


Figure-3 H&E Picture showing perivascular lymphocytic Infiltrate and suprapapillary thinning of early psoriasis –Low power view (x10X)

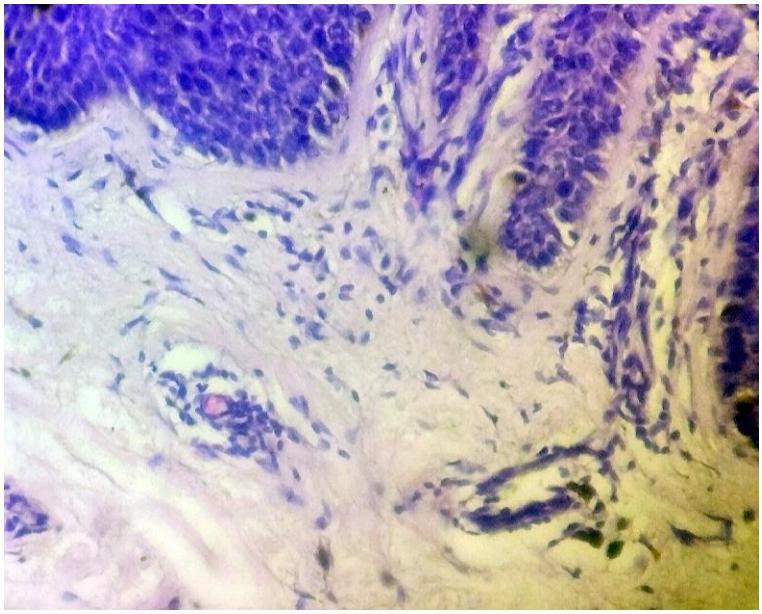


FIGURE-4 H&E -Picture showing perivascular lymphocytic infiltrate of early psoriasis High power view (x40X)-

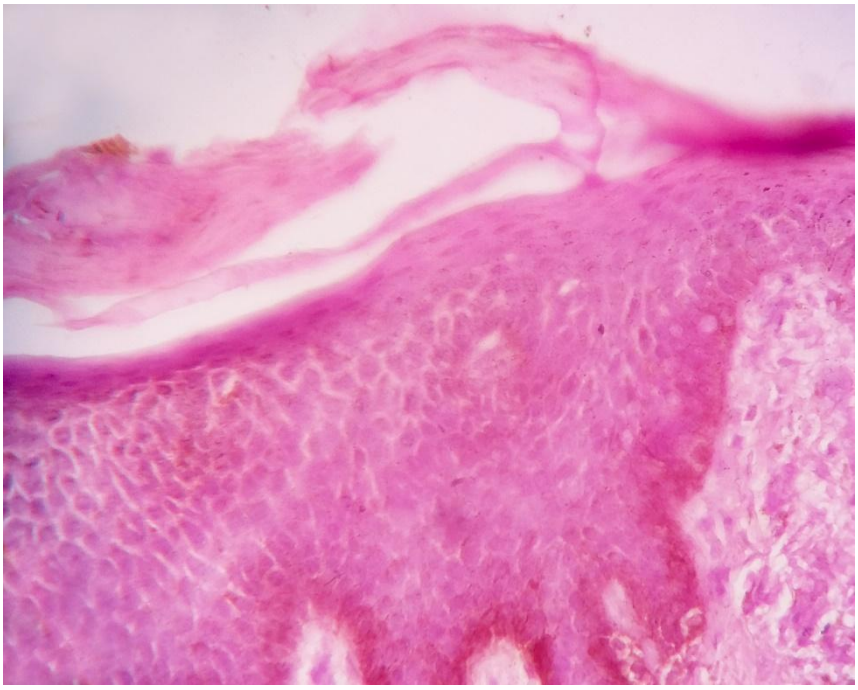


FIGURE-5 H&E section showing hyperkeratosis and acanthosis of psoriasis- High power view(x40X)

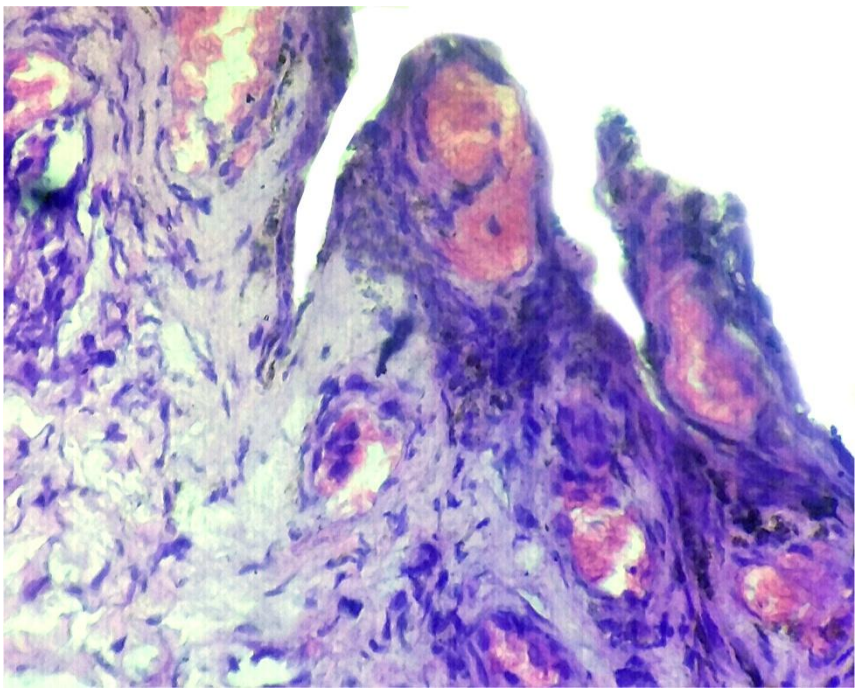


FIGURE-6 H&E sections showing dilated and congested blood vessel in papillary dermis of early psoriasis – High power view

LICHEN PLANUS

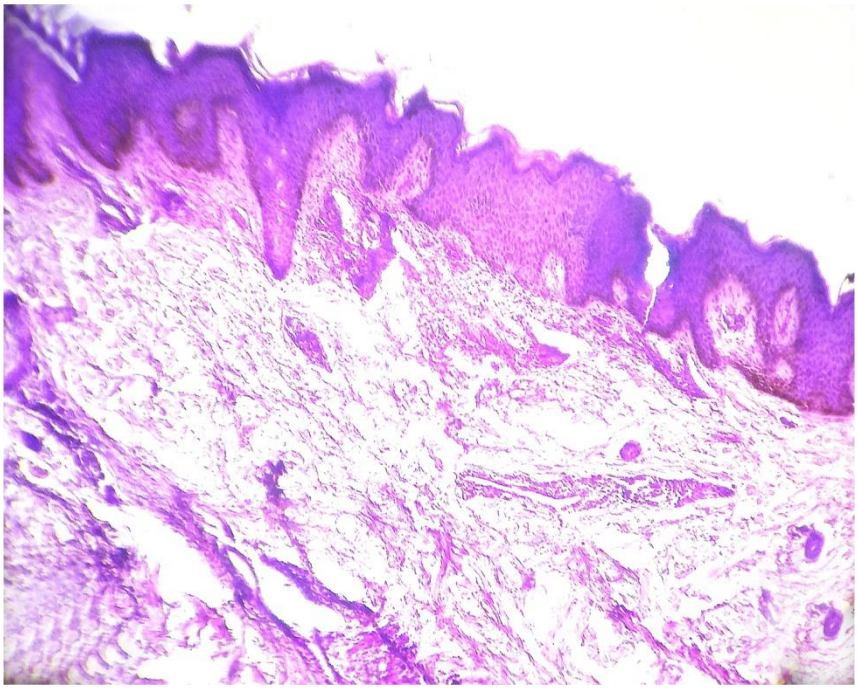


Figure -7 H&E Section showing irregular acanthosis and saw toothed rete pegs of lichen planus- Low power view(x10X)

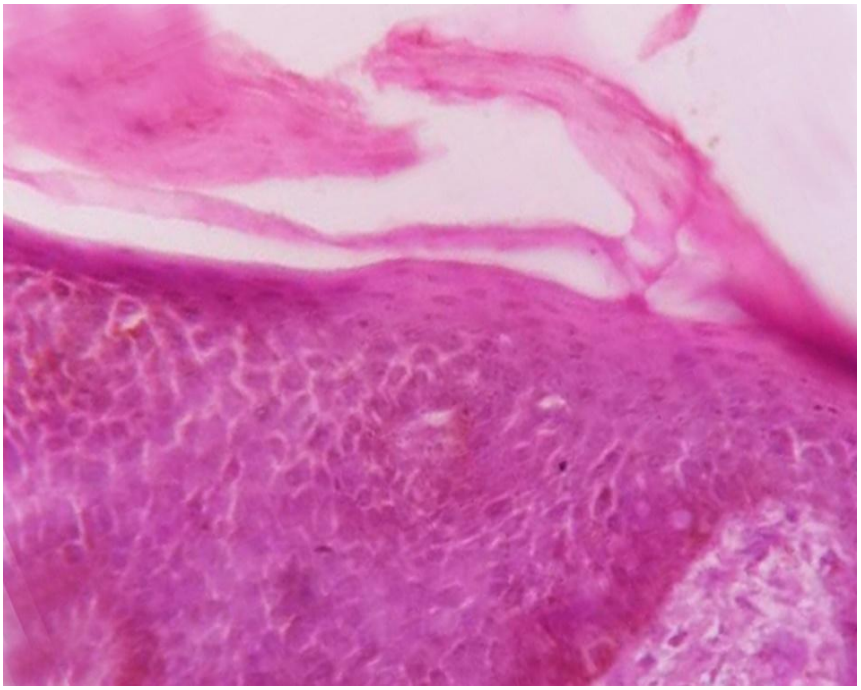


FIGURE-8 H&E Sections show hyperkeratosis of lichen planus- High power view(x40X)

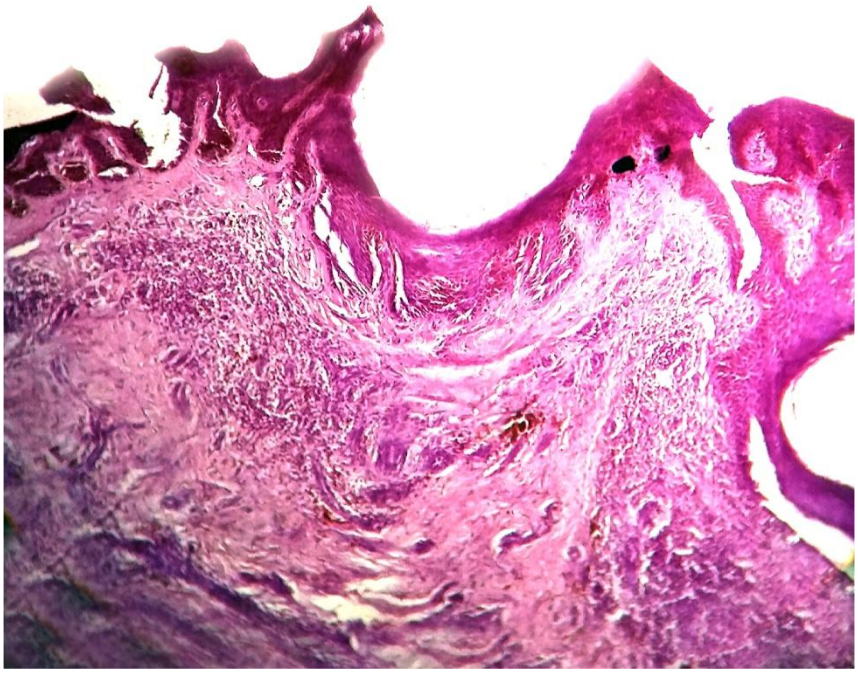


Figure-9 H&E Sections showing band like inflammatory infiltrate of lichen planus-Low power view(x10X)

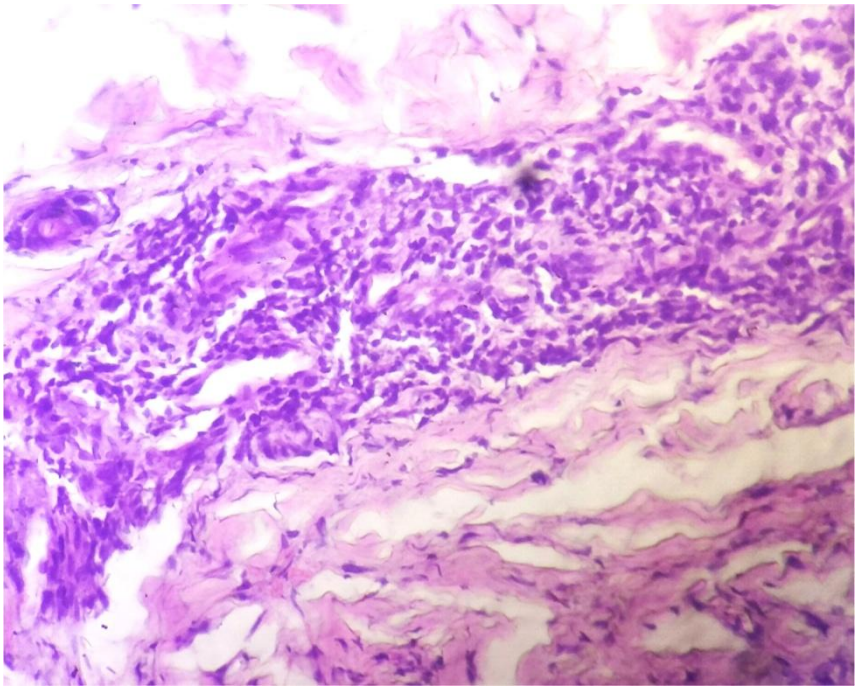


Figure-10 H&E Sections showing band like inflammatory infiltrate of lichen planus – High power view(x40X)

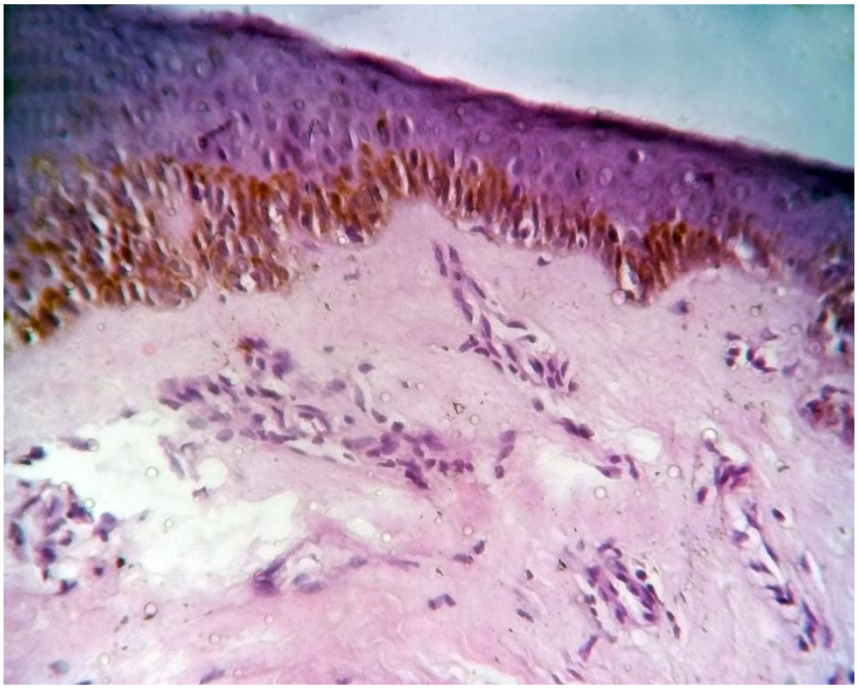


Figure-11 H&E Sections show vacuolar degeneration and pigment incontinence of lichen planus-– High power view(x40X)

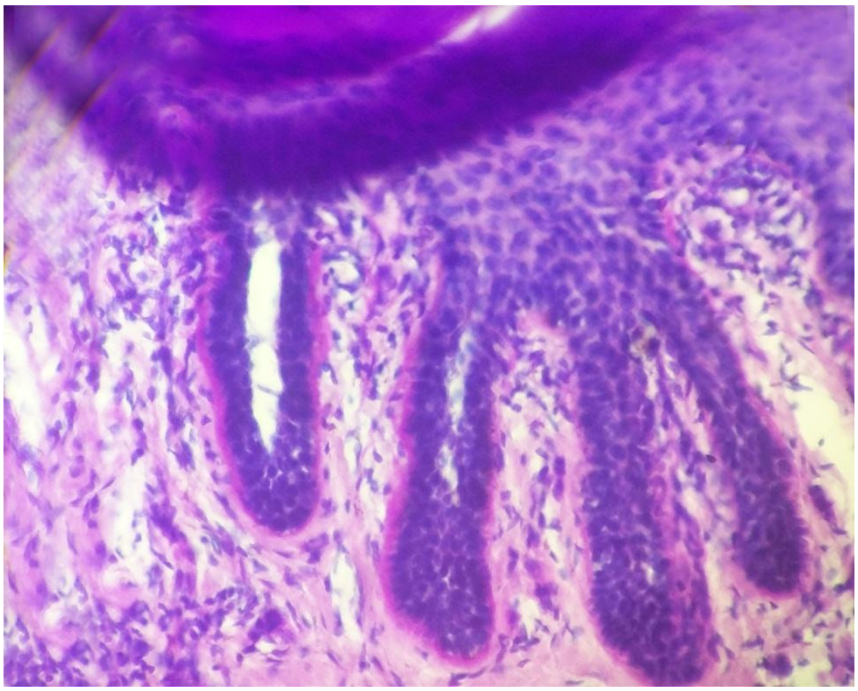


Figure -12 PAS Stain show basement membrane thickening and focal fragmentation of basement membrane in lichen planus- – High power view(x40X)

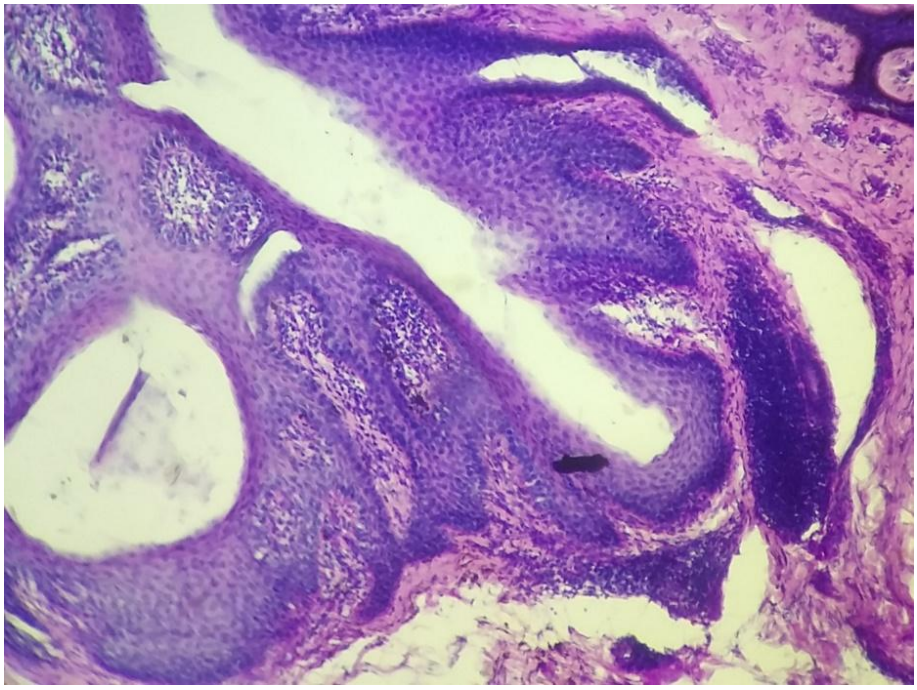


Figure-13 PAS Stain show basement membrane in lichenoid reaction-– High power view(x40X)

LUPUS ERYTHEMATOSUS

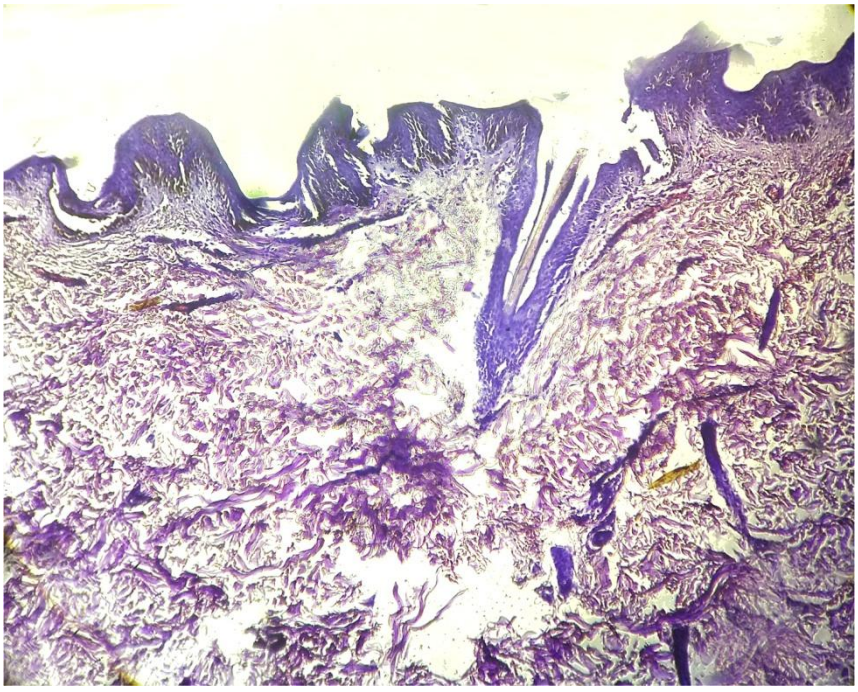


Figure-14 H&E sections show follicular plugging in lupus erythematosus – Low power view(x10X)

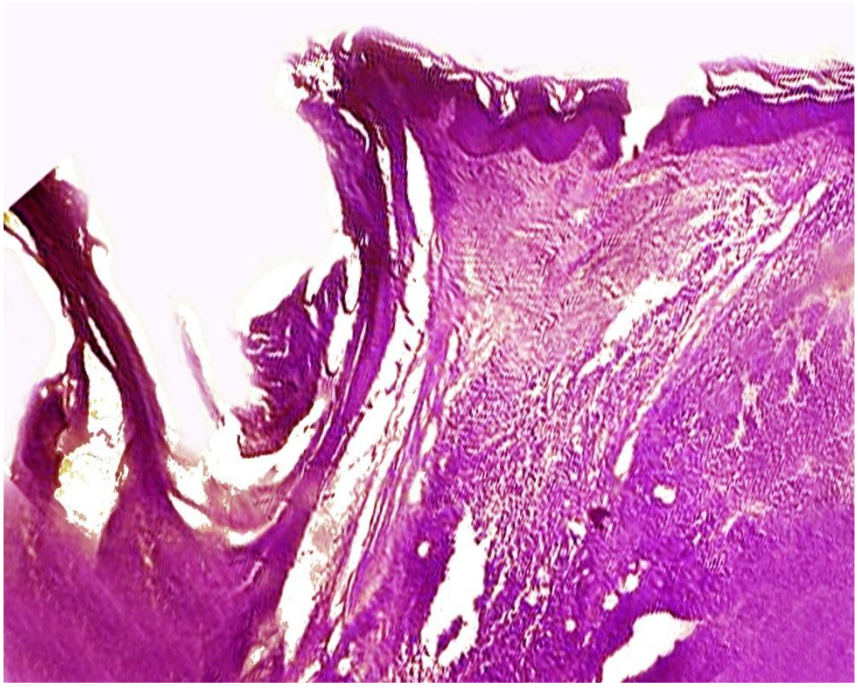


Figure-15 H&E sections show follicular plugging in lupus erythematosus – high power view(x40X)

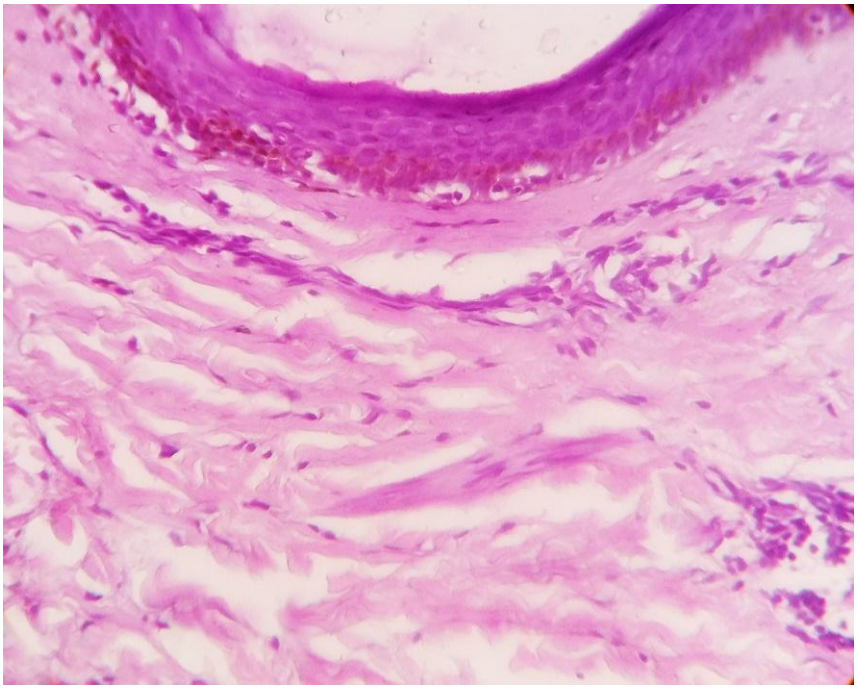


Figure-16 H&E Picture show basal cell vacuolation with underlying dermis show lymphocytic infiltrate in lupus erythematosus- – high power view(x40X)

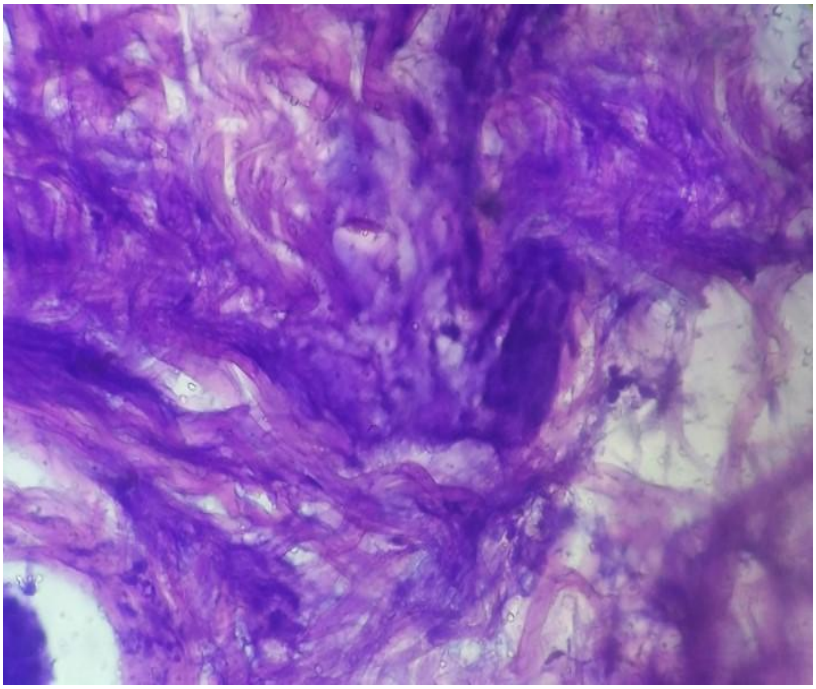


Figure -17 H&E Sections show intradermal mucin in Lupus erythematosus– high power view(x40X)

PITYRIASIS RUBRA PILARIS

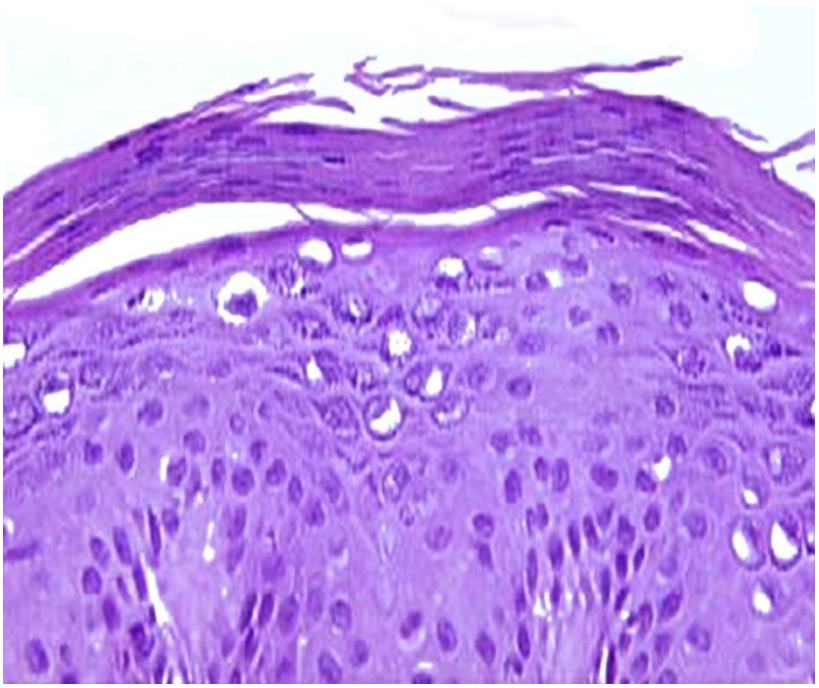


Figure-18 H&E Sections show parakeratotic mound in pityriasis rubra pilaris- Low power view(x10X)

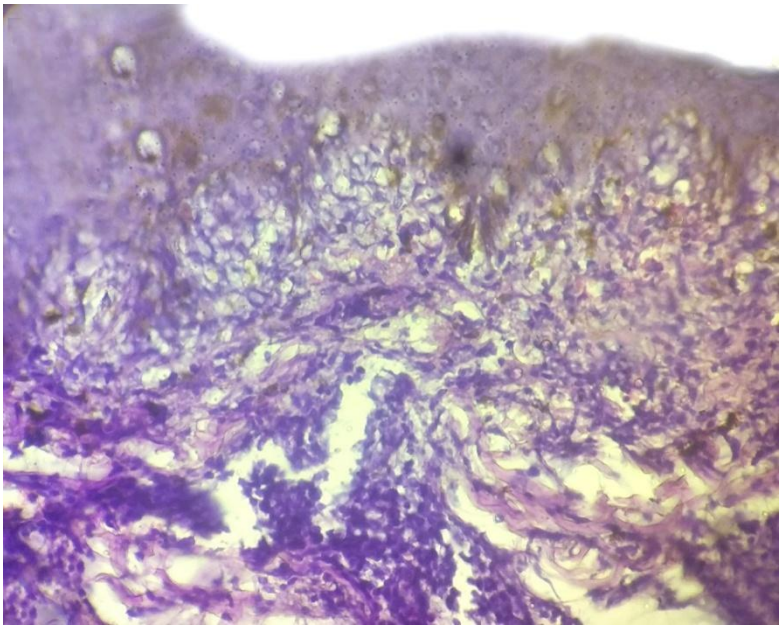


Figure-19 H&E Sections show spongiosis in pityriasis rubra pilaris- – high power view(x40X)

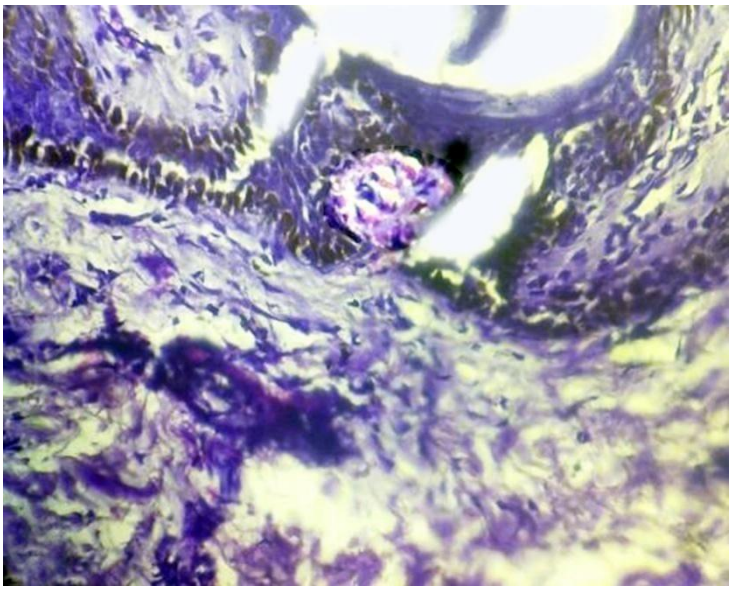


Figure-20 H&E Sections show mild spongiosis and extravasated RBC of pityriasis rubra pilaris-– high power view(x40X)

PARAPSORIASIS

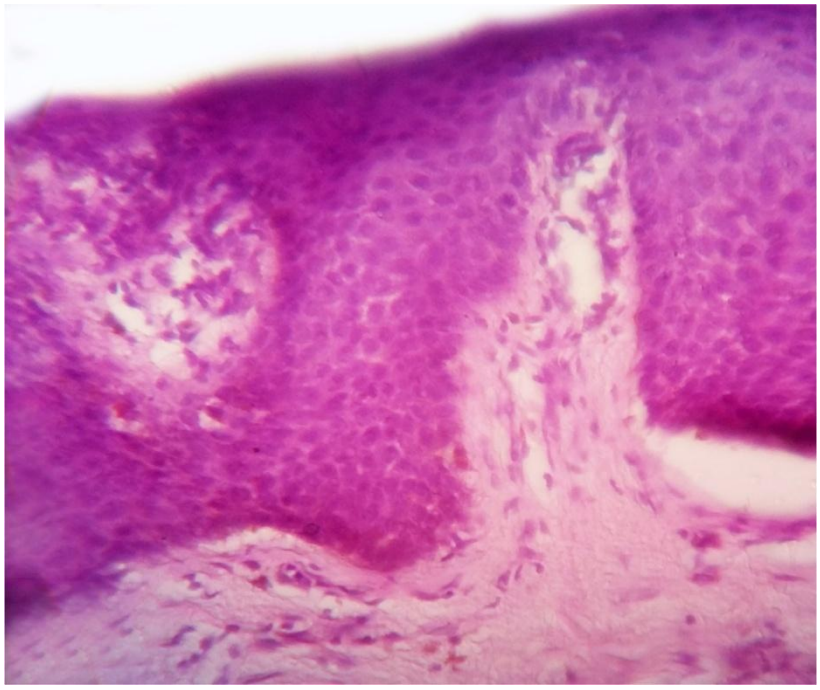


Figure-21 H&E Sections show psoriasiform elongation of rete ridge with mild spongiosis in para psoriasis– high power view(x40X)

DISCUSSION

The present study group comprised of 129 patients with clinically diagnosed papulosquamous skin lesions and the study was done over the period of one Year (July 2016 to June 2017.)

In this study clinical, histopathological features were studied. In Lichen planus clinical, histopathological and special stains were studied. The results obtained were compared with other studies and discussed as follows. In 129 clinically diagnosed cases, 49 cases were Psoriasis, 36 were lichen planus, 16 were pityriasis rubra pilaris, 15 were parapsoriasis and 13 were lupus erythematosus.

Among 129 clinically diagnosed cases, 86 cases (67%) show positive histopathological correlation. 43 cases (33%) show negative histopathological correlation. Among 86 cases, 39 constitute psoriasis, 20 were lichen planus, lupus erythematosus constitute 10 cases, pityriasis rubra pilaris constitute 9 cases and 8 were parapsoriasis.

The present study includes psoriasis, lichen planus, pityriasis rubra pilaris, lupus erythematosus and parapsoriasis.

TABLE-15 INCIDENCE OF VARIOUS PAPULOSQUAMOUS SKIN LESIONS IN VARIOUS STUDIES

Disease	Sushil chichani et al[77] (2016)	S.D. Chavhan et al[79] (2014)	Chaudhary et al[78] (2015)	Raja sekhar Reddy etal[80] (2014)	Present study
Psoriasis	40(51%)	20(33%)	27(15%)	34(43%)	39(45%)
Lichen planus	25(32%)	35(57%)	42(23%)	24(30)	20(23%)
Pityriasis rubra pilaris	6(8%)	NI	11(6%)	4(5%)	10(12%)
Lupus erethematosus	NI	NI	10(6%)	NI	8(9%)
Parapsoriasis	4(5%)	NI	6(3%)	3(4%)	9(11%)
Other	3(4%)	6(10%)	83(47%)	15(18%)	-
Total	78(100%)	61(100)	179(100%)	80(100)	86(100%)

From the above table psoriasis was the commonest papulosquamous skin lesion followed by lichen planus. This was in accordance to Rajasekhar Reddy et al and Sushil Chichani et al. Other study showed lichen planus as a largest group. The variation in our study was due to geographical distribution of papulosquamous skin disorder.

TABLE 16 AGE AND SEX DISTRIBUTION IN VARIOUS STUDIES

Parameters	Raja sekhar Reddy etal[80] (2014)	S.D. Chavhan et al[79] (2014)	Karumbaiah et al[82] (2017)	Present study
Age	31-40 yrs	21-40(34)years	20-30 years	20-40 years
M:F Ratio	Male predominance	Male predominance	Male predominance	Male predominance

Most common age group in our study was 2nd to 4th decade. This was in accordance to other studies. Youngest age of this study was 10 years. Mean age of our study was 36 years. This was in accordance to S.D. Chavhan et al study. There was a male predominance. This is similar to other studies.

TABLE-17 SITES OF INVOLVEMENT IN VARIOUS STUDIES

Parameters	GraceD' Costa and Bhavana[83]study	Present study
Most common Sites of involvement	Extremities	Extremities

Most common site of involvement was extremities followed by trunk. This was in accordance to GraceD' Costa and Bhavana study.

TABLE-18 CLINICAL AND HISTOPATHOLOGICAL FEATURES OF PSORIASIS IN VARIOUS STUDIES

Parameters	Karumbaiah K.P. et al[82] (2017)	Raja sekhar Reddy et al[80] (2014)	S.D. Chavhan et al[79] (2014)	Present study
Incidence	44%	42.5%	33%	45%
Age	20-40 Years	30 to 40 years	41-50 years	30-40
Male female ratio	Common in males	Males =Females	Common in males	Common in males
Sites of involvement	Elbow, Knee, Scalp	Trunk and extremities	-	Trunk and extremities
Clinical features	Erythematous plaques with silver scales	Erythematous plaques with silver scales	-	Erythematous plaques with silver scales
Hyperkeratosis and acanthosis	77%	89%	83%	79%
Elongated rete ridges	72%	75%	74%	61%
Suprapapillay thinning	50%		38%	69%
Dermal infiltrates	82%	82%	90%	78%

From the above table psoriasis was the predominant lesion in present study. It was similar to the Karumbaiah K.P. et al study. S.D. Chavan et al study show slightly lower incidence. Common age group affected was 30-40 years. This was according to Rajasekhar Reddy et al study.

Common sites of involvement were trunk and extremities in present study. This was similar to Raja Sekhar Reddy et al study, where as in Karumbaiah K.P. Et al study, elbow, knees and scalp were the most common sites of presentation.

Hyperkeratosis, acanthosis, dermal infiltrates, elongated rete ridges were the most common presentation in this study. This was similar to Karumbaiah K.P. et al Study and S.D. Chavan et al study.

TABLE-19 VARIANTS OF PSORIASIS IN OTHER STUDIES

Parameters	**Raja sekhar Reddy et al[80] (2014)**	**Saranya Bai, Sowmya Srinivasan[84] study (2016)**	**Present study**
Psoriasis vulgaris	87	88	95%
Chronic plaque psoriasis	6	-	2.5%
Guttate psoriasis	6	-	2.5%
Pustular psoriasis	1	12	-

From the above table, in present study psoriasis vulgaris was the most common variant followed by chronic plaque psoriasis and guttate psoriasis. It was in accordance to Rajasekhar Reddy et al.

TABLE-20 CLINICAL FEATURE AND HISTOPATHOLOGICAL PICTURE OF LICHEN PLANUS IN VARIOUS STUDIES.

Parameters	Karumbaiah K.P. et al[82] (2017)	Rajasekhar Reddy etal[80] (2014)	S.D. Chavan et al[79] (2014)	Present study
Incidence	34%	30%	57%	23%
Age	31-40 Years	31 to 40 years	41-50 years	
Male female ratio	Common in males	Males =Females	Common in males	
Irregular acanthosis with saw toothed rete ridges	76%	100%	66%	90%
Hyperkeratosis and parakeratosis	100%	100%	29%	90%
Vacuolar degeneration	100%	100%	83%	45%
Band like inflammatory infiltrate	76%	75%	89%	50%

From the above table lichen planus was 2nd most common papulo squamous disorder (23%). This was in accordance to Rajasekhar Reddy et al and Karumbaiah K.P. et al study.

Irregular acanthosis and with saw toothed rete ridges, hyperkeratosis and parakeratosis were the predominant histopathological features. This was in accordance to other studies.

TABLE-21 VARIANTS OF LICHEN PLANUS IN OTHER STUDIES

Parameters	Rajasekhar Reddy et al[80] (2014)	Asmita parihar et al (2013)	Present study
Classical Lichen planus	59%	61%	60%
Hypertrophic lichen planus	19%	-	10%
Lichen planus pigmentosus	12%	27%	10%
Lichen plano pilaris	10%	12%	20%

From the above table, classical lichen planus was the predominant type of lesion. It correlates with other studies.

TABLE- 22CLINICAL AND HISTOPATHOLOGICAL FEATURES OF LUPUS REYTHEMATOSUS IN VARIOUS STUDIES

Parameters	Dr.Karumbaiyah KP and Prof.Kariyappa[85] study	Present study
Age	21-50	30-50 years
Sex	Female preponderance	Female preponderance
Basal vacuolation	75%	63%
Hyperkeratosis	50%	50%
Epidermal atrophy	50%	50%
Dermal infiltrate	75%	75%

From the above table 30 to 50 years was the most common age group. Females were the most commonly affected rather than males. This was according to Dr.Karumbaiyah KP and Prof.Kariyappa study.

Basal vacuolation and dermal infiltrates were the most common histological findings in the present study. This was according to Dr.Karumbaiyah KP, Prof.Kariyappa study.

TABLE-23SUBTYPES OF LUPUS ERYTHEMATOSUSIN OTHER STUDY

Parameters	Dr.Karumbaiyah KP and Prof.Kariyappa[85]	Present study
Acute lupus erythematosus	35%	2(25%)
Sub-acute lupus erythematosus	20%	2(25%)
Discoid lupus erythematosus	45%	4(50%)

From the above table discoid lupus erythematosus was the most common form followed by acute and sub acute lupus erythematosus. This was similar to Dr.Karumbaiyah KP and Prof.Kariyappa study.

PITYRIASIS RUBRA PILARIS

Incidence of pityriasis rubra pilaris in present study was 11%. This was slightly higher than Sushil Chichani et al study (7.69%) and Rajasekhar Reddy et al study (5%). This variation might be due to geographic distribution.

Regarding the age distribution 2 peaks were noted. One between 2nd to 3rddecade and the other between 4 th to 5 th decade. This was in accordance with Rajasekhar Reddy et al study

Male predominance was seen in present study. This was according to Dr.Fung study and Dr.Pankaj Adhichari, Dr. Seujee Das study, whereas some large studies showed equal incidence.

Alternating hyperkeratosis with parakeratosis and hypergranulosis and extravasated red blood cells are the most common features in present study . This was according to Dr.Fung study.

PARAPSORIASIS

Incidence of para psoriasis in present study was 10%. This was slightly higher than Rajasekhar Reddy et al study. This might be due geographical variation.

TABLE-24 CLINICAL AND HISTOPATHOLOGICAL CORRELATION IN VARIOUS STUDIES

Disease	Sushma Hosamane et al[86] (2016)	Chaudhary Raju.R et al[78] (2015)	Present study
Psoriasis	45%	74%	80%
Lichen planus	48%	93%	56%
Pityriasis rubra pilaris	60%	72%	63%
Lupus erythematosus	-	60%	62%
Parapsoriasis	0	50%	60%

From the above table, in present study, Psoriasis showed 80% positive histopathological correlation. This was in accordance to Chaudhary Raju.R et al study, whereas in Sushma Hosamane et al study the correlation was lower. This might be due to inter observer variation and variation in selection of cases

In lichen planus positive correlation was 56%. This was is in accordance to Sushma Hosamane et al study. Whereas in Chaudhary Raju.R et al study the clinicopathological correlation was 93%. This may be due to variation in selection of cases.

In lupus erythematosus, clinico pathological correlation was 63%. This was according to Chaudhary Raju.R et al study

In pityriasis rubra pilaris, positive clinicopathological correlation is 62%. This was similar to Chaudhary Raju.R et al study and Sushma Hosamane et al study.

In parapsoriasis, positive clinicopathological correlation is 60%.This was similar to Chaudhary Raju.R et al study

SPECIAL STAIN APPLICATION

Periodic Acid Schiff was applied in clinically diagnosed 36 lichen planus cases. However in our present study, we had an interesting finding. We noted basement membrane thickening and fragmentation in

lichen planus patients which was not seen in lichenoid reactions. Ana Maria Abreu velez et al study stated that colloid bodies in lichen planus take up PAS. So colloid bodies were stained using PAS. Where as in present study, colloid bodies had not been demonstrated. Colloid bodies was better demonstrated in classical lichen planus cases only. In our study clinically suspicious lichen planus and lichenoid reactions only were taken. Hence colloid bodies were not demonstrated.

Out of 20 positively correlated cases, 10 cases show PAS positivity. Out of 16 negatively correlated cases, 14 cases show PAS positivity. In Manish Juneja et al[81] study, oral lichen planus was differentiated from lichenoid reaction by increased number of mast cells in areas of basement membrane degeneration, increased vascularity and PAS positive basement membrane thickening.

SUMMARY

- The present study is prospective study.
- Aim of the study is to study the histomorphology of papulosquamous skin lesions with special stain application over a period of one year at Coimbatore Medical College Hospital.
- The study period was 1 year from July 2016 to June 2017.
- Our study consists of 129 clinically diagnosed papulosquamous skin lesions.
- Among 129 cases, histopathologically diagnosed cases were 86 cases.
- Among 86 cases 39 cases belongs to psoriasis,20 cases are lichen planus,10 cases to pityriasis rubra pilaris, 9 cases were parapsoriasis and 8 cases were lupus erythematosus.
- The most common age group in our study was 31-40 years. The mean age was 39 years. The youngest age was 10 years and oldest age was 82 years.
- Males are mostly affected and the sex ratio was 1.96:1(male: female).
- Most patients present to the hospital within 1year of onset of symptoms.
- Extremities, trunk and back were the most common sites of involvement.

- Most common primary symptom was itching and most common clinical presentation was scaly lesion and erythematous plaque.
- Hyperkeratosis, basal cell vacuolation, acanthosis and suprapapillary thinning, club shaped rete ridges of epidermis and inflammatory infiltrates of dermis were the most common histological features in Psoriasis.
- Hyperkeratosis, parakeratosis, saw toothed rete ridges, pigment incontinence and band like inflammatory infiltrates in papillary dermis were the most common histopatholgical features in lichen planus.
- Hyperkeratosis, epidermal atrophy, follicular plugging, dermal mucin were the most common histopathological features in lupus erythematosus.
- Alternating hyperkeratosis with parakeratosis and hypergranuosis and extravasated red blood cells were the most common histological features in Pityriasis rubra pilaris.
- Psoriasiform epidermal hyperplasia, parakeratosis, spongiosis were the most common histopathological features in para psoriasis.
- Clinicopathological correlation of papulosquamous skin lesions were performed. In present study psoriasis showed 80% positive correlation, lichen planus showed 56% positive correlation, lichen

planus with PAS showed 67% positive correlation. Pityriasis rubra pilaris showed positive correlation of 63%, lupus erythematosus show positive correlation of 62% and parapsoriasis showed 60% positive correlation.

- Periodic Acid Schiff show basement membrane thickening with focal fragmentation in lichen planus cases.
- Periodic Acid Schiff was performed in 36 cases of clinically suspected lichen planus cases. In this, 24 cases showed PAS positivity.12 cases were PAS negative. Chi square test performed. The p value is <0.05 which shows statistically significant correlation.
- Periodic Acid Schiff showed 67% positivity for lichen planus. PAS increased the positive correlation in lichen planus by11%.
- Hence Periodic Acid Schiff can be applied to enhance the accuracy of diagnosing lichen planus.

CONCLUSION

- Papulosquamous lesion is one of the most frequent lesions encountered in Dermatopathology.
- It is essential to classify the papulosquamous diseases in which the treatment options are different for individual diseases.
- Clinical examination acts as a screening test in papulosquamous skin disorder.
- Psoriasis, Lichen planus, Pityriasis rubra pilaris, Parapsoriasis and lupus erythematosus were included in the study.
- Psoriasis was the most frequent papulosquamous skin lesion in the present study followed by lichen planus.
- Erythematous lesions and scaly plaques were the most common clinical presentation in psoriasis.
- Itchy violaceous papules were the most common clinical feature of lichen planus.
- Erythematous plaques and malar rash were the most common presentation in lupus erythematosus.
- Macules and erythematous lesion were most common presentation in pityriasis rubra pilaris.
- Scaly and erythematous plaques were the most common clinical presentation in parapsoriasis.

- Clinicopathological correlation is essential in the precise diagnosis of most papulosquamous skin lesions.
- Club shaped rete ridges and suprapapillary thinning is the characteristic histological picture in psoriasis.
- Saw toothed rete ridges, basal cell vacuolation, band like inflammatory infiltrates are the characteristic histological picture in lichen planus.
- Follicular plugging, dermal mucin with dermal lymphocytic infiltrate with either epidermal atrophy or hyperkeratosis are the characteristic histological picture in lupus erythematosus.
- Alternating parakeratosis hyperkeratosis, extravasated red blood cells and hypergranulosis are the characteristic histological picture in pityriasis rubra pilaris.
- Parakeratosis without supra papillary thinning with psoriasiform hyperplasia and lymphocytic infiltrate is seen parapsoriasis.
- Lichen planus is difficult to be distinguished from lichenoid reaction pattern based on clinical and H&E staining alone.
- In lichen planus, basement membrane thickening and focal fragmentation better demonstrated with Periodic Acid Schiff.

- Periodic Acid Schiff helps to differentiate lichen planus from lichenoid reaction.
- Clinical features along with light microscopy and periodic acid stain may be helpful in accurate diagnosis of lichen planus.

ANNEXURE I

PROFORMA

Coimbatore medical college

Department of Pathology

Coimbatore

Particulars of the patient:

Name: Age:

Ward : IP. No:

Address: Occupation:

Presenting complaints:

Duration of the skin lesion

Sites of involvement

Itching

Crusting

Scaling.

Past history:

History of similar illness

Family history

Personal history:

Diet

General examination:

Nourishment: Built:

Pallor: nail changes

Febrile/afebrile oral lesions

Local examination:

Site: Size:

Erythematous lesions

Scaly lesions

Papules or macules

Koebners phenomena

Oral lesions

Nail changes

Clinical diagnosis:

Microscopic findings:

Histopathological diagnosis

PAS staining for Lichen planus

FINAL DIAGNOSIS

ABBREVATIONS

BMZ	Basement Membrane Zone
LP	Lichen Planus
PAS	Periodic Acid Schiff
DLE	Discoid Lupus Erythematosus
PRP	Pityriasis Rubra Pilaris
SLE	Systemic Lupus Erythemtosus
SCLE	Subacute Cutaneous Lupus Erythematosus
HPE	HistoPathological Examination
DPX	Dextrene,Polystyrene, Xylene
H&E	Haematoxylin and Eosin

ANNEXURE-II

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ANNEXURE III

MASTER CHART

S. NO	IP NO	NAME	AGE	SEX	HPE NO	SITE	CLINICAL FEATURES	CLINICAL DIAGNOSIS	HPE DIAGNOSIS WITHOUT SPECIAL STAIN	FINAL DIAGNOSIS
1	681300	IBRAHIM	30	1	2617	E	S,E	1	1	1
2	415064	NAGARAJ	35	1	2668	F&S	E,I,P	1	1	1
3	71993	SUMI	34	2	2858	B	S,C,I	1	1	1
4	720419	SELVARAJ	54	1	2940	E	S,C	1	1	1
5	109865	VANITHA	33	1	4139	G	S,E	1	1	1
6	45673	RENGASAMY	80	1	4341	C	S,C,I	1	1	2
7	793576	SUGUMAR	26	1	128	T	E,P	1	1	1
8	1098743	KARUPPUSAMY	52	1	283	E	E,P	1	1	1
9	80405	MEERA	32	2	468	T	S,C,I	1	1	1
10	940980	SENTHIL NADHAN	40	1	514	G	S,E,P	1	1	1

S. NO	IP NO	NAME	AGE	SEX	HPE NO	SITE	CLINICAL FEATURES	CLINICAL DIAGNOSIS	HPE DIAGNOSIS WITHOUT SPECIAL STAIN	FINAL DIAGNOSIS
11	12732	RADHAKRISHNAN	68	1	627	B	S,C,M	1	1	1
12	17211	MAYILATHAL	60	2	863	E	E,I	1	1	1
13	494545	BALAJI	35	1	881	E	S,C	1	1	1
14	17211	MAYILATHAL	60	2	960	F&S	S,C,I	1	1	1
15	21124	GANESAN	46	1	1081	E	E,P,M	1	1	1
16	534483	RAJU	30	1	1148	E	S,C,P	1	1	1
17	1502581	VASEEGARAN	34	1	658	T	S,C,M	1	1	1
18	1091660	THANGARAJ	55	1	2017	B	S,E	1	1	1
19	1091660	NIVETHA	18	2	2018	F&S	E,P,M	1	1	1
20	1066187	PRABHU	40	1	1751	E	S,C,I	1	1	1
21	1072498	MASILAMANI	31	1	1837	G	S,E,I	1	1	1
22	1100133	PADMA	50	2	2152	T	S,C,P	1	1	1
23	36090	VISHNU	21	1	1656	E	S,C,I	1	1	1
24	993829	BASEER	61	1	1862	E	E,I,P	1	1	1
25	959777	ANUMADHAN	14	1	928	B	S,C,M	1	1	1
26	969484	BIKUTTY	65	1	1074	B	E,P	1,2	1	1
27	10524148	GOVINDARAJ	45	1	1127	F&S	S,E	1	1	1

S. NO	IP NO	NAME	AGE	SEX	HPE NO	SITE	CLINICAL FEATURES	CLINICAL DIAGNOSIS	HPE DIAGNOSIS WITHOUT SPECIAL STAIN	FINAL DIAGNOSIS
28	150211	NESAIYYAN	55	1	1987	C	E,I,M	1	1	1
29	22788	RAMU	48	1	1184	B	S,C,I	1	1	1
30	1179227	SAROJA	48	1	2869	F&S	E,P,M	1	1	1
31	1022788	SAMUVEL	58	1	1434	B	S,C	1	1	1
32	1155054	PALANIYAPPAN	65	1	2567	E	E,I,P	1	1	1
33	1154993	SURESH	41	1	2609	C	E,I	1	1	1
34	1182691	SEETHA	45	2	2927	F&S	S,C,M	1	1	1
35	1152096	SHAKTHI	19	1	2925	T	S,E,I	1	1	1
36	1098762	KOKILA	20	2	2870	B	E,I,P	1	1	1
37	1077657	KUMAR	36	1	1909	E	S,C,M	1	1	1
38	77566	MAHALAKSHMI	61	2	1567	F&S	E,I,P,	1	1	1
39	87060	SANDHYA	22	2	2321	E	S,C	1	1	1
40	637196	NAGARAJ	61	1	2126	B	P,E,I	2	2	2
41	620407	PONNARASI	19	2	2287	C	P,I,M	2	2	2
42	761814	SUBRAMANI	61	1	3227	E	P,E,M	2	2	2
43	796929	SENNIMALAI	82	1	3641	E	E,I,M	2	2	2
44	811452	PAPPATHI	65	2	3654	G	P,S,I,C	1	6	6

S. NO	IP NO	NAME	AGE	SEX	HPE NO	SITE	CLINICAL FEATURES	CLINICAL DIAGNOSIS	HPE DIAGNOSIS WITHOUT SPECIAL STAIN	FINAL DIAGNOSIS
45	7773496	GOWRI	12	2	3656	T	P,E,I	2	2	2
46	645890	SUNIL	17	1	4139	T	P,E,M	2	2	6
47	1090876	NIRMALA	17	2	4203	E	E,I,M	2	2	2
48	77089	AZHAGESH	29	1	4240	E	P,E,I,C	2	2	2
49	1086754	CHITHRA	48	2	4039	E	P,I,M	2	2	4
50	56076	MAHESH	10	1	39	T	P,S,E,C	2	2	6
51	450366	MANJULA	21	2	531	E	P,S,E	2	2	6
52	556604	THIRUMALAISAMY	60	1	1311	P&S	E,I,M,C	2	2	2
53	606365	MAHESKUMAR	37	1	1795	C	P,S,M	2	2	6
54	1057830	PRASATH	20	1	1655	T	P,E,I	2	2	2
55	1152756	AMUTHA	29	2	2691	E	P,E,I,M	2	2	6
56	1098438	SIVAKUMAR	43	1	2568	B	S,E,I,C	2	2	6
57	1161148	KAVERI	22	2	2710	E	P,S,I,M	2	2	6
58	1098765	KALIYAPPAN	45	1	2345	E	P ,E,I	2	2	2
59	1132456	KAVERI	32	2	2710	B	P,S,E,M	2	2	6
60	43941	SELVATHAL	73	2	2532	T	E,S,M	3	3	3
61	1076543	SELVANAYAGI	50	2	2772	F&S	E,S,P	3	3	3

S. NO	IP NO	NAME	AGE	SEX	HPE NO	SITE	CLINICAL FEATURES	CLINICAL DIAGNOSIS	HPE DIAGNOSIS WITHOUT SPECIAL STAIN	FINAL DIAGNOSIS
62	726705	LATHA	51	2	3042	E	E,M,C	3	3	3
63	63242	ESHWARI	36	2	3336	B	E,S,P	3	3	3
64	65037	SULOCHANA	45	2	3430	T	E,S,I	3	3	3
65	790567	JOTHY	37	2	3508	E	E,S,P	3	3	3
66	105764	NAGAMMAL	62	2	4239	F&S	E,S,I	3	3	3
67	31183	RANI	38	2	1649	E	E,S,C	3	3	3
68	172344	THULASI	56	2	1942	T	E,M	3	6	3
69	657454	VINOTH	24	1	2290	E	M,P,I	4	4	4
70	74044	SUDHARSAN	43	1	3839	C	M,E,C	4	4	4
71	76710	NACHIMUTHU	47	1	3970	B	S,P,I	4	4	4
72	774726	PARTHIBAN	11	1	3338	F&S	M,E,C	4	4	4
73	1089962	MOHAN	38	1	4039	E	M,P,I	4	4	4
74	75610	NAVEEN KUMAR	16	1	401	P&S	S,P,E	4	4	4
75	110231	JANARTHANAN	36	1	560	B	M,E	4	4	4
76	540245	SULOCHANA	54	2	1306	T	M,P,I	4	4	4
77	454033	KARUPPUSAMY	52	1	1472	F&S	M,E,C	4	4	4
78	574098	NAGARAJ	12	1	1511	T	M,S,P	4	4	4

S. NO	IP NO	NAME	AGE	SEX	HPE NO	SITE	CLINICAL FEATURES	CLINICAL DIAGNOSIS	HPE DIAGNOSIS WITHOUT SPECIAL STAIN	FINAL DIAGNOSIS
79	698082	MOHAMED	36	1	2673	E	S,E,P,C	5	5	5
80	73065	VELUSAMY	45	1	3837	P&S	S,E,M,C	1	5	5
81	373248	MURUGAN	32	1	1398	B	S,E,I	5	5	5
82	569885	VINOTH KUMAR	32	1	1471	E	S,P,I,C	5	5	5
83	578505	YUVARAJ	55	1	1603	C	E,M,I,C	1	5	5
84	599877	MOHANDAS	32	1	1770	F&S	S,E,I,C	5	5	5
85	33423	AMUTHAN	14	1	695	E	S,E,P,I	5	5	5
86	1067865	SUMATHI	37	2	769	E	S,E,M	5	5	5
87	1136815	KARTHICK	23	1	2506	G	S,E,M,C	5	5	5
88	642918	NUUSHEBH	28	1	2141	F&S	C,E,I	5	6	6
89	686502	LAKSHMI	40	2	2563	G	S,E,I	3	6	6
90	49914	SAKTHIVEL	45	1	2567	E	M,E,I	3	6	6
91	445343	ROSI	49	2	2625	F&S	E	2	6	2
92	483288	VENUGOPAL	60	1	2730	E	S,C	4	6	2
93	46983	SAKTHIVEL73	73	1	2445	G	P,I,M	4	6	6
94	56713	SAMAYAMUTHU	55	1	3047	E	P,I,	1	6	6
95	1098675	RAJAMMAL	11	2	2226	B	S,E	4	6	6

S. NO	IP NO	NAME	AGE	SEX	HPE NO	SITE	CLINICAL FEATURES	CLINICAL DIAGNOSIS	HPE DIAGNOSIS WITHOUT SPECIAL STAIN	FINAL DIAGNOSIS
96	67584	BANUMATHI	42	2	2674	T	P,I	2	6	6
97	747826	MAHALAKSHMI	48	2	3100	T	E	3	6	2
98	375727	SENTHIL KUMAR	38	1	3428	E	S,I	5	6	6
99	791592	VINOTH KUMAR	21	1	3509	E	P,I	2	6	2
100	66573	RAJAMMAL	50	2	4279	E	M,P,I	2	6	2
101	1125643	AJAY	17	1	4161	E	P,I,M	2	6	2
102	1065743	VARSHINI	7	2	2029	T	S,P,I	2	6	2
103	2264	AMSAVENI	28	2	196	B	S,I	5	6	6
104	909753	VIJAYA	40	2	206	B	S,E,M	1	6	6
105	1098765	KRISHNA MOORTHY	49	1	288	C	S,P,I	2	6	2
106	1065764	KALARANI	30	2	601	F&S	M,I	4	6	6
107	494377	LAKSHMI	55	2	805	E	M,P,I	2	6	2
108	632719	LAKSHMI DARSAN	23	2	2039	C	S,E,I	1	6	6
109	44805	VANITHA	29	2	2083	E	S,I	5	6	6
110	1050925	GOWTHAM	21	1	1633	G	S,C	5	6	6
111	44805	MALAR	29	2	2083	T	M,P	9	6	2
112	1180985	VENGADESH	30	2	2871	B	P,I,M	2	6	2

S. NO	IP NO	NAME	AGE	SEX	HPE NO	SITE	CLINICAL FEATURES	CLINICAL DIAGNOSIS	HPE DIAGNOSIS WITHOUT SPECIAL STAIN	FINAL DIAGNOSIS
113	15031	NAGARAJAN	38	1	1084	T	E	3	6	6
114	1143543	VINOTH	36	1	1567	E	P,I	2	6	6
115	89065	SUDHARSHAN	36	1	2354	B	S,I	1	6	1
116	109876	VIJAY	27	1	2796	P&S	I,S	5	6	6
117	1198765	BASKAR	42	1	2712	F&S	P,I	2	6	2
118	1095647	LOGANADHAN	44	1	1081	C	S,I,E	1	6	6
119	1876453	KRISHNAN	55	1	1276	E	P,E	2	6	6
120	1124374	VANI	42	2	1356	G	P,M	2	6	6
121	77098	VELUSAMY	67	1	1765	E	M,I,P	5	6	6
122	89056	SELVAM	56	1	1435	F&S	P,I	2	2	6
123	109843	NITHYA	41	2	1876	E	S,C,I	1	6	6
124	43595	KUPPUSAMY	46	1	2340	T	S,E,I	1	6	2
125	817481	SURIYA	20	1	3739	B	M,P	4	6	6
126	728238	RAJ KUMAR	43	1	3834	C	P,I	2	6	2
127	176854	AISHWARYA	22	2	519	E	M,P	4	6	6
128	1180985	PRAVEEN	20	1	2871	T	M,P	2	6	6
129	1098741	SUBRAMANI	42	1	2257	G	S,E,I	5	6	6

KEY WORDS TO MASTER CHART

CLINICAL, HISTOPATHOLOGICAL AND FINAL DIAGNOSIS

1 Psoriasis

2 Lichen Planus

3 Lupus Erythematosus

4 Pityriasis Rubra Pilaris

5 Parapsoriasis

6. Others

SITES OF INVOLVEMENT

T - Trunk

E - Extremities

F&S - Face and Scalp

P&S - Palm and Sole

B - Back

C - Chest

CLINICAL FEATURES

E - Erythematous Lesions

S - Scaly Lesion

P - Papule

M - Macule

I - Itching

C - Crusting

SEX

1 - Male

2 - Female